

# COMPUTERWORLD

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## IBM Obsoletes the Key PL/1 Manual, Users Fear Proliferation of Dialects

WHITE PLAINS, N.Y. — The standardization of PL/1, previously regarded by many as being the walk away winner for the standard language of the future, took a step backwards recently when a key document, the *PL/1 Language Specifications Manual*, was quietly withdrawn by IBM and, according to the IBM newsletter, not replaced. This left users confused, but on

the surface comparatively unaffected, as reference manuals to supplement the programmer's guides were issued for the two major implementations: the Operating System and the Disk Operating System.

### Planning Seen More Difficult

However, fears have been expressed that the manual was withdrawn so that changes

in portions of the language not yet implemented could now be made without the user's awareness. Thus the user would lose the "look ahead feature" which allowed him to see future developments.

### Multiple Dialects Feared

Another fear expressed was that there would now be more than one dialect of the

language, making it practically impossible to produce a standard language. Observers recalled the history of Fortran with its many different dialects and the problems involved in moving programs from one system to another. The possibility of different dialects was underlined by users who noted that the two different versions of the language presently available from IBM were at variance in some areas. DOS user James Taylor of Dayton, Ohio, told *Computerworld* that he was beginning to wonder if the DOS PL/1 was, as he had anticipated, really a proper subset of the larger operating system. He said that he had found differences in a number of areas, including the pointer variable, the base attribute, and other areas.

### Manual Still Available

Despite the fact that IBM's newsletter stated that the manual had not been replaced, *Computerworld* has learned that it actually has been reclassified into a restricted category and still is available to students of languages and to implementers. This apparently means that competitive firms which are planning to implement PL/1 will be able to obtain details of the latest IBM versions of the language.

### Industry Leaders Surprised

Bob Bemer, who led the IBM team in the negotiations which resulted in the creation of Cobol — based on a standard manual equivalent to the withdrawn PL/1 manual — told *Computerworld* that he was not aware of the move, and was quite surprised by it. Bemer is still very active in language standardization activities and recently wrote a preface to a book on PL/1.

The other major personality in Cobol's history, Navy Commander Grace Hopper, who represented Univac and is currently

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## ACM Conference Opens

LAS VEGAS, Nev., Aug. 27 — The sign on the hotel marquee says "Association of Computing Machinery," and inside the door is a wide variety of machinery computing away — slot machines.

Officials of the 1968 ACM National Conference and Exposition, which opens here this morning, described the pre-registration figures as "grim." As of last night, 1300 of the 3000 rooms reserved for the conference remained untaken. Officials were hopeful that many more people would arrive here by the time the conference opened at 9 a.m. today. Some of the organizers consoled themselves with the thought that things could be worse — that the conference could have been held in Chicago, which this week is afflicted with taxi, bus, and electricians' strikes, and the Democratic National Convention. The site of the conference had been changed from Chicago to Las Vegas last September during a three hour telephone conference call. Anthony Oettinger, then ACM president, said he had just kept the executive committee on the line until the members came to a decision.

Some members are still not happy. Las Vegas hotels expect guests to spend four times their room rent in the gaming rooms,

and the taint of organized crime still hangs over the strip.

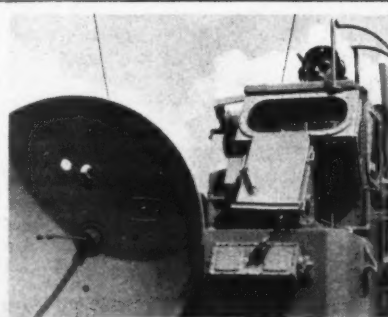
Donn Parker, ACM secretary, voiced his continued disapproval, while Richard Blue, conference chairman, pointed out that it could be assumed that ACM members were adults and knew where to draw the line.

### \$3 for Journal

In a pre-conference meeting, the ACM Council decided to charge \$3 for members' subscriptions to the *ACM Journal*, beginning next year. The figure was a compromise between the \$2 charge recommended by the ACM Editorial Board and higher charges recommended by some members of the council who felt that since the same 20% of the membership would take it at either price, the ACM might as well make some money out of it.

Editors of the new survey and tutorial journal, which also was discussed, were reported to have decided to try to obtain good papers by inviting papers and paying a basic price of \$1000 per paper published. Authors of invited papers which were later rejected would be paid \$500. By paying for papers, they hope the journal will

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### New Tracker

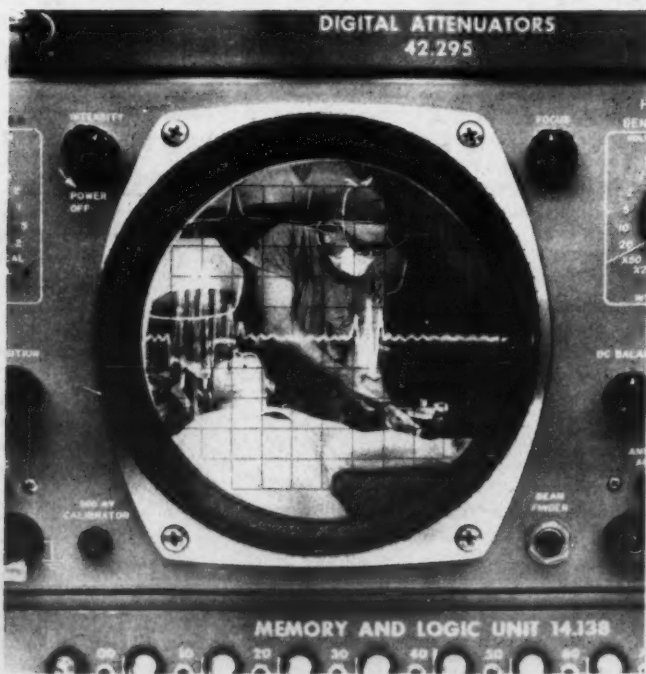
This radar system aboard the Coast Guard cutter *Chincoteague* will feed target information to the Coast Guard's first ship-board digital computer, a Honeywell commercial DDP-516. Story on page 2.

## Off-Shelf High Stacks

SANTA CLARA, Calif. — Memorex is now promising immediate, off-the-shelf delivery of its Mark VI "high stack" disk packs.

The disk packs, designed for use with the Memorex 660 and IBM 2314 disk drives, are delivered with home addresses and record zero already recorded to save initialization time.

## Computer Controlled 'Patient' Speeds Training of Anesthesiologists



LOS ANGELES — Sim One, the computer controlled medical "patient," has enabled students to learn certain skills twice as fast, according to a report from the University of Southern California School of Medicine.

While noting that the number of students so far involved was too small to be able to make reliable predictions, the directors of the Sim One project estimated that if such patient simulators were used to teach all anesthesiological skills, student training time could be cut by 25%.

"Man must inevitably turn to the machine in what is already a national crisis in medical manpower and in the field of education which produces that manpower," said Dr. Stephen Abra-

A physician gives an injection to Sim One and the "patient's" reaction appears in the heartbeat trace shown on the control panel in this composite photograph.

hamson, co-director of the project.

### More Funds Needed

The Sim One project, funded by a \$272,130 grant from the Cooperative Research Project of the U.S. Office of Education, now lacks funds for continued development.

Abrahamson and his co-director, Dr. J.S. Denson, said they are seeking funds to establish a center for the development of more sophisticated computer controlled manikins.

Sim One, capable of many of the reactions of a human patient, is used to teach resident physicians the skill of endotracheal intubation, the passing of a semi-rigid tube into the mouth, between the vocal cords, and into the trachea for the administration of anesthesia.

"Not only was there a great saving of time for both students and teachers, but human patients were spared potential discom-

fort," the research directors said.

### Saving Lives

But most important, students learn to cope with emergencies before a life is at stake. The

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# Standard Will Build Time Share System

MINNEAPOLIS — Standard Computer Corp.'s style of "fourth generation" hardware got its first taste of the big time this week when the Pillsbury backed Call-A-Computer time sharing service bureau company ordered a special version of it for CAC's Los Angeles office, and stated that company intended to expand the order to handle a nationwide operation. Delivery was set at an almost unprecedented short period of four months from order, with the explanation that the architecture of the system allows it to be built while many details of instruction code design and optimization are still being worked out.

## Solves Biggest Difficulty

The main innovation of the Standard Computer design is that the instruction codes can be optimized to the needs of specific users — if necessary by actually loading new sets of instructions along with his program [CW, June 19]. Warren Prince, Call-A-Computer's general manager, pointed out that the system solved what he called "the biggest problem in time sharing . . . the changing and varied needs of many different customers solving different problems at the same time."

Standard systems employ small, high speed "inner computers" which control the system and service the program by executing the critical subroutines and repetitive jobs which ordinarily take up great amounts of machine operating time and

main memory capacity. Micro-programs and super-instructions inserted in the inner computer's high speed memory permit the system to literally "change its spots" and "problem adapt" readily to the solution of diverse types of programs with highly improved cost/performance. In addition to time sharing, examples of problem adaptation are emulation of other computers and micro-programming of fast compilers.

Prince said the Standard systems would permit Call-A-Computer to modify its machines on short notice to meet changes in customer needs and would also provide the customer with increased programming and application versatility.

## New Software

While Standard is concentrating on the hardware, the Call-A-Computer people are developing the micro-programs which will control both the inner computer of the main system and the peripheral processor which handles I/O operations. The inclusion of this second processor is the major change made to make the ordinary Standard system ready for time sharing.

One result of this is that the system still does not have a name to call its own, according to William Woolley of Standard Corp.

The new system will later be marketed — together with the software developed by Call-A-Computer — as a package under a joint marketing agreement.

# ACM Ethics Challenged During IFIP Discussion

By a Special Correspondent

EDINBURGH, Scotland — A special session on ethics and professionalism in information processing was held on the first day of the IFIP Congress here.

Donn Parker, session chairman and head of the ACM's Professional Standards and Practices Committee, reported that the ACM has taken a wait-and-see attitude towards any examination program to qualify its membership. He noted that the ACM has examined with interest the CDP program of the Data Processing Management Association. However he said that ACM officers feel that they do not have sufficient internal resources to devise a similar type of examination program for its own membership.

Parker also mentioned that the ACM had adopted a set of guidelines for ethical conduct by members of the ACM, but that the association had no intention of enforcing these guidelines at the current time.

## ACM Accused

A Dr. Hirst, of the Australian Computer Society, complained that the ACM did not seem to be following its ethical guidelines in its own publications. He said that right across from the contents page of the March *Communications of the ACM* which listed an article on the ethical guidelines there was an advertisement from Scientific Data Systems which he felt was unethical and in bad taste. The advertisement compared SDS's Sigma computers to IBM computers. J.D. Madden, executive secretary of the ACM, pointed out that advertising standards differ from country to country. He said that the ACM does review advertisements submitted to its journals, but added that rejections were rare.

The 20 or so people who attended the session stressed the need to develop professional standards for data processing people on an international basis. Otherwise, it was felt, a person could be expelled from a society in one country for reasons that

would not be a bar to membership in another national society.

The discussion reviewed the difficulties of maintaining professional standards for computer practice in countries where the membership of the national computer society represented only a small percentage of the total number of professional computer people in the country. For example, the British Computer Society was said to represent upwards of 90 to 95% of the people doing professional computer work in the U.K. However, in the U.S., the ACM, with some 24,000 members, was said to represent only 20% of the similarly qualified people in the U.S. (The DPMA, with another 24,000 members, represents a large share of the people in the U.S. interested in business data processing.)

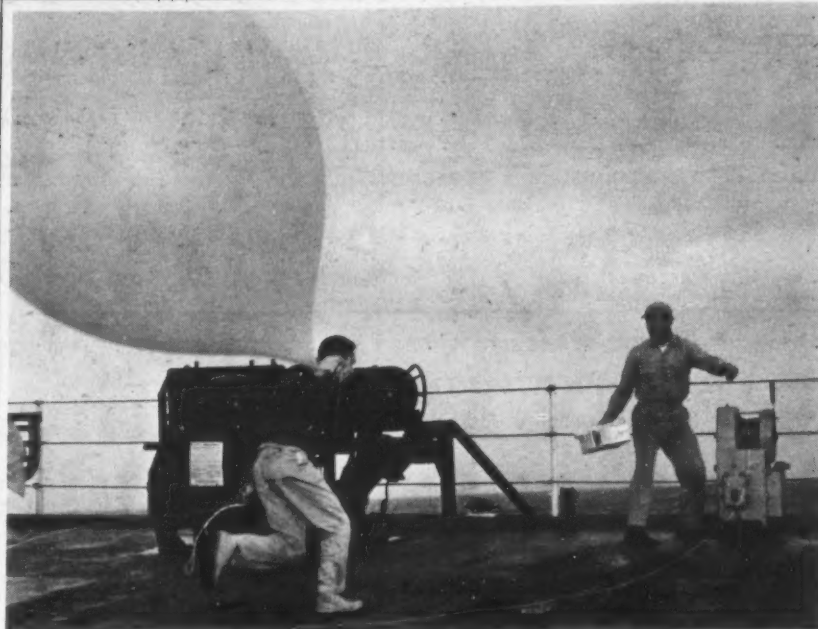
## What Is a 'Programmer'?

Another point which generated considerable discussion was the use of a single term by which computer professionals could designate themselves. One U.S. member felt the term "programmer," although humble, was widely understood. An Englishman objected, however, that in the U.K. a person called a programmer is often understood to be someone who schedules work in a factory.

Donn Parker pointed out that the ACM had tried to use the term "informatics" for computer science and to designate the people in the field as "informaticians." However, the attorneys for the software firm Informatics had refused to grant permission for the use of this term.

## Social Problems Not Involved

Other questions, such as the social implications of the applications of computers in the areas of privacy and the restrictions on personal data banks, and the impact of computers on employment, were felt to lie outside the immediate area of attention of a committee on standards for professional practice.



Coast Guardmen launch a weather balloon from the deck of the *Chincoteague*. A new radar-computer system aboard the ship will track the balloon to provide wind speed and direction data at altitudes up to 100,000 feet.

# Coast Guard Chooses Commercial Digital Computers for Sea Duty

By Joseph Hanlon

NORFOLK, Va. — The Coast Guard will soon install its first shipboard general purpose computer onboard the cutter *Chincoteague*, the first of 39 cutters to be so equipped.

Weather balloon tracking will be the regular job of the computer, but it will also be available for tasks such as oceanographic research and aiding search and rescue operations.

The *Chincoteague* already has undergone 15 months of tests with a smaller computer and a new radar system. These tests were successful, and the Coast Guard headquarters here announced Aug. 22 that it would install radar-computer systems on 39 cutters, beginning with the *Chincoteague* early next year.

## Commercial Units

The Coast Guard is ordering a commercial computer, the Honeywell DDP-516, rather than having one built to special specification. The DDP-116 has been used in the tests.



The Coast Guard cutter *Chincoteague*, currently undergoing tests with a computer aided weather balloon tracking system.

Coast Guard cutters gather weather data, provide emergency navigation aid to aircraft and ships, and perform emergency search and rescue operations. The Coast Guard has four such vessels in the North Atlantic and six in the North Pacific at all times.

An important use of the computer will be for oceanographic research. Scientists will be able to process data as they get it, instead of sending it back to shore for processing. The smaller computer has already been used for processing water temperature data. The next project is expected to be a salinity test.

## Navigation Aid

The new computer also can aid naviga-

tion by converting star sightings or satellite reports into latitude and longitude readings. Converting star sightings by hand takes an hour longer than by computer.

Primarily, however, the new computer will be used with the ship's improved radar system for tracking. The computer takes into account the roll and pitch of the ship, the earth's curvature and refraction, and the heading and speed of the ship in order to compute the true position of the target.

All data is displayed in the ship's Combat Information Center. These displays are updated every 0.25 seconds. When tracking a weather balloon, the system automatically punches the true position of the balloon in Teletype code on paper tape. This tape can be used directly to send the data to shore stations.

## Search and Rescue

During search and rescue operations, it can track a search aircraft and aid the air control officer in keeping the plane in a specific search pattern. If a plane radios that it is planning to ditch at sea, the system could track it down and pinpoint the spot where it landed in the ocean.

Tracking a helicopter, it can enable the air control officer to direct the helicopter to a zero visibility landing on the cutter's deck.

Weather balloon tracking is the regular job of the new system. Balloons are sent up from each ship four times a day. By tracking the balloon, it is possible to determine wind speed and direction as a function of altitude. This data is transmitted to shore stations where it is used in weather forecasting and to gain information on jetstreams for commercial aircraft.

## Fire Control

The system can also be used to track gunnery targets. The new digital computer and improved radar are used in conjunction with an analog computer that provides gun aiming instructions. With the new system, it is possible to track a target up to 200,000 yards (99 miles) away. In a training exercise at Guantanamo last December, the *Chincoteague* won a gunnery prize, and Commander Thomas Wetmore, captain of the ship, gives credit for the improved performance to the new system.

The computers to be provided for the Coast Guard will be ruggedized to withstand the shock and vibration of sea duty. The Honeywell DDP-516 accepts 32 digital inputs and provides 24 outputs. Memory capacity is currently 8192 words but can be expanded to 32,768.



# 8 months ago, Honeywell introduced Keytape. And you're still punching cards?

## I'm embarrassed.

I know if I had Honeywell Keytape, my computer could read my records 1000% faster.

I know I could increase my productivity, probably by a good 30%, and reduce my card costs, too. (I'd save a fortune.)

I know how reliable Honeywell Keytape is. (Honeywell makes computers, and that's good enough for me.)

And I know how easy Keytape is to learn and run.

It's just that I've been so busy lately . . .

Would you send me your 40-page description manual?

Name \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

I have \_\_\_\_\_ keypunch units.

Send to Honeywell EDP, Data Products and Services,  
Wellesley Hills, Mass. 02181.

**The Other Computer Company:**  
**Honeywell**

## I'm from Missouri.

I've heard all the good things about Honeywell Keytape. But nobody has proven anything to me yet.

Show me.

Send me your 40-page description manual, and tell me where I can see a demonstration.

Name \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

I have \_\_\_\_\_ keypunch units.

Send to Honeywell EDP, Data Products and Services,  
Wellesley Hills, Mass. 02181.

**The Other Computer Company:**  
**Honeywell**

## I'm sold.

I want to replace my \_\_\_\_\_ keypunch units.

Send me a Keytape salesman in a hurry.

Name \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Send to Honeywell EDP, Data Products and Services,  
Wellesley Hills, Mass. 02181.

**The Other Computer Company:**  
**Honeywell**

## Editorials

### Attention ACM Members

The Measure for Measure on page 5, dealing with the accusation that the ACM was in breach of its own Ethical Guidelines, started out as being a normal article on a normal but important subject. It ended as an interesting piece of satire, which was frustrating in its trivial conclusion.

*Computerworld* feels that the ACM Executive Committee, the ACM Council, and ACM officers should follow the ACM Ethical Guidelines. All official actions of the ACM should be directly the personal responsibility of some specific ACM officer, who, as an ACM member can be called to answer for the alleged offense.

Then it would clearly follow that the ACM is expected to follow its own guidelines.

Currently it is not clear enough that this is so. It is, however, quite easy to have the matter cleared up, if the membership so desires. The method involved is described on page 5.

### Users Have a Need to Know

The latest news on the PL/1 language standard manual shows a surprising lack of understanding by IBM of the need to keep its users informed. Last summer Share's president said publicly that failure to provide appropriate public announcements could lead to the death of PL/1. The removal of the standard language manual was handled in a way which left many users unaware that anything had happened.

IBM will have only itself to blame if PL/1 fails to live up to the high hopes for it because the company unnecessarily keeps important information from its users. Users have a need to know so that they, too, can plan.

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TM Reg. U.S. Pat. Off.

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## point at issue

### The Computer Man and Society

By Robert P. Bigelow

What does the computer industry owe society? *Computerworld* and *Computers and Automation* magazine have raised the question frequently. In the March 1968 issue Ed Berkeley, editor of *Computers and Automation*, reviewed 1967 and found that his columns had included about 70 allusions and discussions of political, social, ethical, legal, and philosophical issues during the year. Berkeley believes that the computer man should see and admit that these questions exist, are important, and deserve some study and attention; he should devote some time weekly to becoming informed on the question; he should discuss this question with friends and associates; and he should take some action to express his moral judgment. The position of *Computerworld* is well known to its readers.

But do computer people really care about social problems?

The Association for Computing Machinery is "dedicated to the responsible use of computers in an increasing diversity of applications." The Association's secretary, Donn Parker, is chairman of its Professional Standards and Practices Committee, which produced the guidelines adopted in November 1966. These guidelines (which apply to all members of ACM) discuss relations with the public, relations with employers and clients, and relations with other professionals.

#### ACM Guidelines

In the first area, relations with the public, the guidelines require the ACM member to have proper regard "for the health, privacy, safety, and general welfare of the public, and to oppose any untrue, inaccurate, or exaggerated statement or claims, to express an opinion on areas within his competence only where founded on adequate knowledge and honest convictions, and to qualify opinions when they are outside his professional area." Partisan statements are to be prefaced by a disclosure of the person for whom they are made.

The Data Processing Management Association apparently set up a code of ethics when it started out in 1951 (*ACM Communications*, March 1968, p. 198) but I haven't been able to find it. Apparently we now have a new set of ethics for holders of the DPMA Certificate in Data Processing [CW, Aug. 14], but this code is rather wishy-washy on the social duties of the computer professional. The CDP holder "has an obligation . . . to uphold the high ideals . . . certified by the certificate" and "must not engage in any contact or commit any act which is discreditable to the reputation or integrity of the data processing profession." I guess this means he must be a good boy, but the "ideals" are not stated.

#### Privacy and Computer Men

What does it all add up to? Let us take one issue which has received considerable publicity for the last several years: the data bank and privacy. The computer press has been full of discussions

on this interrelationship. The Government Operations Committee of the House of Representatives held hearings in 1966 and 1968. The Senate Judiciary Committee held hearings in 1967 and 1968. The Joint Economic Committee held hearings in 1967. All five of these hearings discussed computer privacy and data banks. How many computer pro-



With this issue, *Computerworld* introduces "Point at Issue," a column of commentary by Robert P. Bigelow, a recognized authority on computers and the law.

Although many of his columns will be devoted to the legal aspects of computers, some, like his first, will be devoted to such topics as the ethical responsibilities of computer people.

Bigelow, a graduate of the Harvard Law School, has been a member of the American Bar Association's Special Committee on Electronic Data Retrieval and chairman of the Boston Bar Association's Committee on Automation.

He is a member of ACM and DPMA as well as of the American, Massachusetts and Boston Bar Associations.

He has edited a number of books, including *Computers and the Law*, *An Introductory Handbook*, *Counseling the Computer User*, and *Legal and Security Issues Posed by Computer Utilities*.

Bigelow is a member of the Boston law firm of Hennessy, McCluskey, Earle, and Kilburn.

professionals showed up?

Of 30 witnesses who testified at the five hearings, only four were connected with the computer industry: Paul Armer and Paul Baran of the Rand Corporation, Emanuel Piere of IBM, and Burton Squires of the University of Illinois. These committees received statements from many organizations but none from the computer "professional" organizations.

Last fall I got a letter from a concerned computer man who said, "Programmers are like morticians who speak of themselves as being 'professionals,' but in fact are, for the most part, technicians."

#### The FCC Inquiry

The Federal Communications Commission in the fall of 1966 started an inquiry into the relationship between computers and communications - a very important question of public policy which will vitally affect the

future of the computer industry. The question of privacy also was involved in this inquiry. Responses were filed in March 1968. Fifty-eight companies and organizations filed responses in March of 1968. The data processing trade associations, such as Adapso and Bema, replied as did practically all the major computer companies.

On the privacy question (defined for purposes of the inquiry as security against unauthorized access), the American Banking Association, the American Newspaper Publishers Association, the American Petroleum Institute, Bema, the Electronic Industries Association, IBM, Lockheed, the National Committee for Utilities Radio, the National Retail Merchants Association, RCA Communications, Univac, and the U.S. Independent Telephone Association all said that no government action was required. But the Bell System, Control Data, GSA, GT&E, the National Association of Manufacturers, and Western Union all said regulation was needed. All that ACM and DPMA could come up with in support of their fine and high sounding professional standards was a response from ACM which reported that "lectures, seminars, and other similar programs are now being presented in this subject area with increasing frequency," and that "the Association for Computing Machinery hereby offers its assistance to the Federal Communications Commission by providing a resource of technically qualified professionals to serve the needs of the commission at its pleasure in this vital inquiry." DPMA did not even bother to file any kind of a statement.

#### Regulation and Management

Recently Hugh Donahue of Control Data commented that when government administrators understand a problem, they either accept or reject the proposition, but when they don't, they regulate it. If the computer industry does not want to find itself regulated by Washington, various states, and the local communities, if the computer community does not want regulation unresponsive to the needs of a growing industry, and prefers not to be stifled like the railroads, then there must be much more attention paid to the issues on a national level.

#### Little Interest

The DPMA International Conference was held in Washington in the end of June. Its five day program included two concurrent seminars on the last day which touched upon the problems that have been discussed above. One seminar dealt with professionalism and data processing, the other with legal and legislative developments affecting the data processing community. It's my understanding that of the thousands who came to the conference only about 30 people showed up for each seminar.

Theodore Rich, the international president of DPMA, in his farewell address that day, (Continued on Page 5)



## Letters To The Editor

### CDP Holder Reacts

To the Editor:

Thank you for your kind editorial words about the new crop of CDP's [CW, July 17]. I have some doubts about the current significance of the CDP, but I took the test because it is "the only game in town," and I thought any personal agitating toward a more relevant test could best be done if I could put the initials behind my name. Statements like yours are unexpected ego-gratification, and I appreciate it.

Most of your subscriptions, I suspect, have come from the same process that caught me: an early subscriber leaves a copy around the office, others browse through it, decide that the copy is informative, sprightly, and current, and take out their own sub-

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Readers also may call in their letters. Call (617) 527-2711 day or night and your opinions will be recorded.

scriptions. Your newspaper has opened up new worlds of EDP information to me, since the "current events" sections of most trade magazines are simply warmed-over press releases. I still relish such headlines of yours as "IBM Rejects DOS Users' Demands, Then Has Its Rejection Rejected."

I guess my next step is to start giving out gift subscriptions to Computerworld.

Robert Higgins  
Detroit

## The Computer Man and Society

(Continued from Page 4)

spoke on "The Data Processor's Responsibilities to Society." Rich said that he had no doubt that "data processing people will be the management of the future. We in this room will be the presidents, the executive vice presidents, and vice presidents of tomorrow."

But where were those future top managers when topics with which top management will have to deal were discussed? Top executives today don't deal with disks and drums. Their concern is with politics, public relations, poverty, and people. Any computer man who aspires to top management must be knowledgeable, and must accept social responsibility.

### Awareness a Duty

If computer people want to

regard themselves as professionals, they have an obligation to the community and to the nation. They have a duty to use their God-given brains for something besides the conversion of bits into bytes.

We are living in the greatest economy the world has ever known, yet many of our brethren are starving. We have, to quote Theodore Rich again, "the tremendous scope of the computer - its ability to reach into the very heart of the company... or outward, to every man, woman, and child in this nation." It is the data processor, the computer man, who has today the great opportunity to serve our nation. You who would be a professional in the computer community must first be a professional in American citizenship.

## Measure for Measure

# Did the ACM Break It's Ethical Rules?

*This is an unusual Measure for Measure because it investigates an accusation rather than a claim. Normally, Measure for Measure looks at the justification behind a claim and turns a critical eye on the documentation. The documentation behind an accusation may be examined in a similar manner.*

Computerworld does not make a practice of investigating accusations, but, in this case, we felt it appropriate to clear the air.

Accusation: The ACM is not following its own ethical guidelines.

This accusation was reported to have been made by a member of the Australian Computer Society during a meeting of the International Federation for Information Processing at Edinburgh, Scotland last month.

### Justification for the Accusation

The Australian member pointed specifically to the Scientific Data Systems advertisement in the March 1968 *Communications of the ACM*. He said this was in breach of the guidelines.

### Computerworld Investigation

Computerworld first tried to establish the relationship between the content of the advertisement and the ACM. No explicit reference to any ACM material was made in the ad, and there was certainly no statement anywhere in the magazine that the ACM took any responsibility for the contents of advertisements in its publications.

We then considered the ACM guidelines.

The only one which appeared to be possibly involved was one which called for "members" of the society to "oppose any untrue, inaccurate or exaggerated statement of claims." For this to be applicable in this particular case it would be necessary to

### The Guideline Concerned

#### Relations With the Public

1.1 An ACM member will have proper regard for the health, privacy, safety and general welfare of the public in the performance of his professional duties.

1.2 He will endeavor to extend public knowledge, understanding and appreciation of computing machines and information processing and achievements in their application, and will oppose any untrue, inaccurate or exaggerated statement or claims.

The above extract shows the guideline apparently referred to. Note the absence of any reference to the ACM itself, or to institutional members of the society as such.

### How ACM Could Be a Secret Member of Itself

#### BYLAW 3. DUES AND PRIVILEGES

SECTION 2. *Institutional Members.* Each institutional member shall pay annual dues and receive such publications of the Association as may be determined by an affirmative vote of at least two-thirds of all the members of the Council. The institutional member shall nominate one person who will be a Member. The name of the institutional member will be published in the *Journal of the Association for Computing Machinery* at least once each year if the institutional member is willing.

The last six words of this bylaw could allow the ACM to be a member of itself - without anyone knowing!

show that the rules which applied to the members also applied to the society itself, and that the statements in the advertisement were either inaccurate or exaggerated. It appeared easier to investigate the first point - whether the rules applied to members are binding on the society - before starting on the potentially unnecessary secondary investigation. So we examined the guidelines themselves, the constitution of the society, and its bylaws. From the guidelines it appeared clear that they did apply to full members of the ACM, and perhaps - although this was by no means certain - to institutional members.

On the surface then these rules did not apply to the society itself, because it does not appear to be an ACM member itself. And if it is a member, it must be an institutional member. (It could be this without anyone knowing because for some peculiar reason institutional members are permitted to keep their names secret if they

desire to do so: Bylaw 3, Section 1.) However, this possibility appeared unlikely and was not followed up. We therefore assumed that the guidelines would be applicable to the society itself only if such a statement was explicitly included in the appropriate documents.

A search was made through the 12 constitutional articles and the 16 bylaws. No such statement was found.

We therefore concluded the investigation.

### Computerworld Verdict

There is no evidence that the ACM acted in breach of its guidelines. The ACM is not subject to its guidelines, and therefore cannot be said to have acted in breach of them.

### Crime And Computers

The second part of CW's investigation of whether and how organized crime might become involved in the computer community will be published next week.

Clip and Send In

## Petition Calling for Vote on ACM Ethics

As pointed out in the *Measure for Measure* article on this page and in the editorial, "Attention, ACM," on page 4, the Association for Computing Machinery itself apparently is not bound by its own ethical guidelines for its members. If you agree with Computerworld that this is an unreasonable situation, please sign the petition below and mail it to Computerworld. We will forward it to the ACM.

The effect of this petition will be to cause a membership vote on the question. If the membership approves the resolution by a simple majority, the resolution will become binding on the ACM Council.

We, the undersigned voting Members of the Association for Computing Machinery hereby petition the Council of said Association that the following resolution be submitted to mail ballot of the entire membership of the Association as provided in the Constitution and Bylaws of said Association.

### Resolution

WHEREAS, on November 11, 1966 the Council of the Association for Computing Machinery adopted guidelines on Professional Conduct in Information Processing, and WHEREAS a complaint that the Association is not following its own guidelines was made before an international computer forum by a member of a sister computer society, and evidence said to support the complaint was there identified, and

WHEREAS the good name of the Association and/or of all its members is imperiled by the lack of any explicit provision that the Association is bound by its own guidelines and by the lack of any effective procedure for the investigation of such complaints against the Association or any of its members.

NOW, THEREFORE BE IT RESOLVED that the ACM guidelines for Professional Conduct in Information Processing shall apply to the Association, and to all persons when they are acting for the Association, whether members of the Association or not, as well as to all members of the Association, and,

BE IT FURTHER RESOLVED that the Council of the ACM shall forthwith establish an effective procedure for the determination of, and a report to the membership on the validity of the above mentioned complaint, and of such further complaints which may be made in the future.

(Member Signature)

(Member Address)

Please sign and send to ACM Petition, c/o Computerworld, 60 Austin St., Newton, Mass. 02160.

## TLW Computerworld Corner

### COMPUTERS FOR SALE

Item 1: 360/30 MOD F, 1051-1, 1052-6. AVAILABLE 11/68.

INDUSTRY  
Aerospace

Item 2: 1401 C4, 1402-1, 1403-2, 1405-1, 4-72911's. Advanced Programming, Print Storage, Numerical print, Hi-Lo-Equal, and others. AVAILABLE 11/68.

Banking

Item 3: 1410-40K, 1415, 3-1414's, 4-729's, 1402, 1403. AVAILABLE 60 days.

Food

Item 4: 1401 C4 8K with 1402, 1403 and 3-1311's. AVAILABLE 90 days.

Manufacturing

Item 5: IBM 1620K and 1620-40K. Additional Instructions. Auto Divide Indirect Address, 1622-1. AVAILABLE 30 days.

School

We have listings for 7074's, 7044's, 7010's, and 7094's.

List your computers with  
Box 29763 Atlanta, Ga. 30329  
(404) 633-2579

Ask us about programs available with computers.

**TLW  
Corp.**



## EDPeople

IS NOW		AT	WAS	AT
J.B. Bodensick	Product Manager	Photon Wilmington, Mass.	Product Manager Graphic Arts	Friden, Inc.
J.A. Cox	President	Professionals for Computing	Branch Manager	IBM Oakland, Calif.
Howard A. Wiles	Systems Representative	Delta Data Systems, Inc. College Park, Md.	Supervisor Digital Computer Systems	National Science Foundation
Richard Deren	Manager Direct Marketing Sys.	Computer Usage Development New York, N.Y.	Systems Engineer	IBM
Lorin T. Stoner	Manager of Marketing	Applied Logic Corp. Princeton, N.J.	Marketing Consultant	General Electric Co. Information Services
Lynn C. Hayward	Senior Staff Member	Measurement Analysis Corp. Los Angeles, Calif.	Director of Operations	Common Research Computer Facil. Texas Medical Center
Franklin A. Power	Placement Administrator	Control Data Institute Waltham, Mass.	Assistant to the Director	Boston University Boston, Mass.
Frederick J. Bezold	Vice President Marketing	MVR Corporation Palo Alto, Calif.	Executive Assistant	Astro Science Corp. El Monte, Calif.
Robert L. Pike, Jr.	Data Systems Manager	West Florida Processing Center Panama City	Systems Analyst	Tyson and Meek Jacksonville, Fla.
Rolf Haag	Advertising & Sales Promotion Manager	Potter Instrument Co. New York, N.Y.	Advertising & Sales Promotion Manager	Hewitt-Robbins Div. Litton Industries
Stuart D.B. Hunt	Director Research & Development	Mac Panel Co. High Point, N.C.	Researcher Research & Development Center	E.I. DuPont de Nemours Wilmington, Del.
H. W. Richardson	Vice President	Computer Center of Atlanta, Ga.	Vice President	Computer Services Corp.
Marvin B. Heit	Vice President	Keystone Computer Associates Willow Grove, Pa.	Assistant to the President	Computer Usage Development Mt. Kisco, N.Y.



J.A. Cox



H.A. Wiles



L.T. Stoner



R. Haag



S.D.B. Hunt



H.W. Richardson

## Consulting and Software Firm Opens Chicago Office

ATLANTA — Management Science America, Inc., a management consulting and computer

software firm, has opened a new regional office to serve the Chicago area and the midwest. The firm now has branch offices in New York City; New Jersey; Charlotte, N.C.; and Atlanta, as well as a chain of data processing centers in operation in Atlanta, Dalton, and Columbus, Ga.; Knoxville, Tenn.; and Charlotte, N.C. Plans include a new center in the Chicago area, according to George H. Grimes, vice president of the firm.

### Comnet Opens Philadelphia Computing Center

WASHINGTON, D.C. — Comnet, a remote computing service organization, has opened a commercial computing center at 130 N. Presidential Blvd., Bala Cynwyd, a Philadelphia, Pa., sub-



urb. Operating a Burroughs B-5500 computer system, the center will service the Delaware Valley area with on-line computer power for information processing. Computer terminals will also be made available to subscribers of the new center.

### Keystone Computer Moves To New Quarters

FT. WASHINGTON, Pa. — Keystone Computer Associates, Inc., a subsidiary of University Computing Co., a Texas compu-

ter services organization, will move to new offices at Ft. Washington Industrial Park located off the Pennsylvania Turnpike.

### Informatics Opens Sacramento Office

SHERMAN OAKS, Calif. — Informatics Inc. has opened a branch office at 400 Capitol Mall, Sacramento, Calif. Dr. Walter F. Bauer, president, announced that Robert J. Reinarts will manage the office, directing company projects with the State of California and with military and commercial installations in the Sacramento Valley. The office will provide commercial and scientific programming services and will have a resident group of senior systems analysts.

### Canadian Subsidiary Formed by Greyhound

CHICAGO — Greyhound Computer Corp. announced it has established a Canadian subsidiary, Greyhound Computer of Canada, Ltd. W. Carroll Bumpers, GCC president and chief executive officer, said the new firm will be headquartered at Toronto with offices in Montreal as well. Gordon B. Clarke has been elected president and chief executive officer of the subsidiary.

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MORE THAN \$60 MILLION  
OF COMPUTERS ON LEASE

### 360/30, 1401, H-200 FOR SALE

IPS has for sale and delivery in the near future several 360, 1401, and H-200 systems. A 360-30 65K CPU with many options is available December 1st. Five 2404 I and 2402 I 30KC tapes are available for November delivery. Among the 1401's (all tape-oriented, with 1402 and 1403) are a 12K with 4 729 V's, a 12K with 2 7330's, and a 4K C-3 system. An H-200 20K with card I/O, printer, and 4 44KC tapes is available Oct. 15th. Another H-200 32K card/tape system is available on long-term lease in March, 1969. For prices and details, please call or write.

IPS

INFORMATION PROCESSING SYSTEMS, INC.  
200 WEST 87TH STREET NEW YORK N.Y. 10019 (212) CIRCLE 6-2267

## London Broker Orders B2500 For Stock Work

James Capel & Co., a London stockbrokerage firm, has ordered a Burroughs on-line B2500 computer system for the preparation of contract notes, accounting, portfolio monitoring, and investment research. Installation is scheduled for spring, 1969.

Kettler Bros. Inc., a homebuilding firm in the District of Columbia, has ordered a Univac 9200 computer system. In addition to payroll processing and accounting applications, the computer will be

### Orders and Installations

used for scheduling construction programs. Installation is scheduled for November. A plated wire memory and miniaturized, integrated circuitry are incorporated in the system.

The Bond Baking Co. Division of General Host Corp. has ordered an NCR Century 100 to be installed at its Bronx, N.Y., plant. It will prepare daily orders for each of 150 routes in the Bronx and Long Island areas; furnish statistical reports by salesman, district, and other categories; and ultimately furnish profitability analyses of each route. Delivery is planned for November.

Eureka Williams Co., Bloomington, Ill., has installed a Honeywell 200 computer to handle its general accounting, payroll, and market analysis. Future applications include inventory control, billing, bills of material, and personnel records. The system replaces an IBM 1401.

The Town of Everett, Wash., has installed a Honeywell Model 120 computer system to prepare for an expected population growth from 50,000 to 100,000 following completion of Boeing's 63 acre building to be used for the construction of superjets. Currently the system is being used for water and sewer department billings, but future applications planned include keeping all police records and maintaining voter registration lists. The 120 replaces a 360/20 card system.

The Department of Agriculture has installed its third Control Data 915 page reader OCR system to read sight drafts and cotton and grain acreage plantings and yields. The three systems process more than six million documents annually.

Price & Pierce Ltd., London, has ordered an NCR Series 500 computer for general accounting purposes. Later it will be used on statistical work. The system is expected to improve service to shippers and buyers of timber and woodpulp throughout the world.

Five small computer systems to be used as teaching aids for high school math and science courses in the Greater Boston school systems have been ordered by the Laboratory Program for Computer Assisted Learning (Project LOCAL) in Boston, Mass. The computers will be manufactured by Digital Equipment Corp. and built around its PDP-8/1 system which carries a basic price tag of \$12,800.



## 360 /75 COMPUTER TIME AVAILABLE

from \$595 per hr.

## 360 /65 COMPUTER TIME AVAILABLE

from \$195 per hr.

## 360 /50 COMPUTER TIME AVAILABLE

from \$145 per hr.

## 360 /40 COMPUTER TIME AVAILABLE

from \$75 per hr.

## 360 /30 COMPUTER TIME AVAILABLE

from \$35 per hr.

### CONTACT

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# Key Data Recorder Will Be Sold in U.S.

PLAINVIEW, N.Y. — Company officials at Potter Instruments here confirmed last week that the new ICL Key Data Recorder, shown at the IFIP Congress in Edinburgh, Scotland, was manufactured here by Potter and that they anticipate it will be introduced into the U.S. market later this year. The delay in introducing it was said to be caused primarily by the desire to wait until adequate production capacity was available for this country as well as for the 1000 units already ordered by ICL.

The new unit, called the KDR 3100, basically consists of one of Potter's field tested, single capstan magnetic tape transports, an expandable memory, state-of-the-art integrated circuit electronics, a Potter original keyboard and console designed to counteract operator fatigue, and a layout to provide comfortable operator work space.

The company claims that the system has all the advantages of other data recording systems and also offers significant design engineering nuances, yet costs no more than older systems. (The price is expected to be directly comparable with Mohawk when released here.) They point out that the KDR 3100 functions at keying speeds unachievable with card punch systems because the use of magnetic tape greatly speeds all programmable functions, and time savings are realized by the generation of magnetic tape records during entry and verification of data.

At the heart of the KDR 3100 is the Potter tape transport which makes possible generation of industry compatible tapes at densities up to 800 bits per inch with

optional 7 or 9 channel recording.

The transport contains a single gap read/write head, an erase head, EOT/BOT sensor, write lockout switch, and will accept a 10-1/2" supply reel that stores 2400' of 1/2" tape.

### Operating Modes

The KDR 3100 operates in the entry, verify, search, display, and record/read modes, selectable via a 5 position switch. In the entry mode, the control program enters the memory from either the keyboard or a section of magnetic tape. Source data is transferred to tape in computer coded format of 6 or 8 bits plus parity. Parity bits are generated by the data recorder logic.

After data is recorded on tape, the unit automatically backspaces to the beginning of the record. Then the tape is read in the forward mode and a check of data read versus memory data is performed, assuring that source data was recorded and that there are no tape flaws in the block. In verifying, the operator reenters source data into memory so that it can be checked against tape data. The search mode allows the operator to seek out a particular block of data simply by keying indicative information of the block sought into the comparator logic. In display mode, the control program and the source data in memory are monitored by indicators and can be advanced through memory by pressing a space bar.

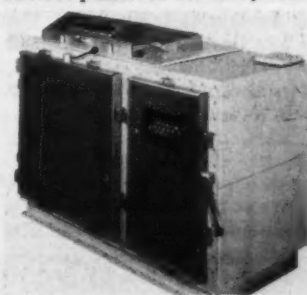


The keyboard of the new Potter Key Data Recorder, above, is used in conjunction with a Potter single capstan tape drive, below.



# New Line Printer Meets Military Specs

A new model line printer is designed to meet all applicable military specifications for shock, vibration, temperature, and radio frequency interference. The RO-280/UK is for use on-line to digital computers, and off-line in conjunction with magnetic tape units or communications terminals. It prints alphanumeric characters at 1000 lines per minute, with 132 characters per line. All electronics and power supplies are self contained, including a control panel for off-line printer



## New Products

operation. The system is fully buffered, containing magnetic core storage for 132 characters. Data Products Corp., 8535 Warner Dr., Culver City, Calif. 90230.

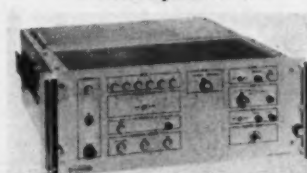
### Desk Top Computer



A programming keyboard, the Model 380, memorizes operator keystrokes on a loop of magnetic tape and repeats them as programs of up to 640 steps. Plug-in

magnetic tape cartridges may be erased and reused, or snapped out and retained. Keys are provided for calculator functions and for operation of optional, compatible system modules including extra data storage registers, typewriters, teletypewriters, etc. The unit can make programmed decisions, loops, and branches. Wang Laboratories Inc., 836 North St., Tewksbury, Mass. 01876.

### Data System



A new electronic package, priced from \$3000 to \$10,000 depending on options selected, provides the user with data acquisition and reduction capability. When equipped with one or more of the options, the Model 1000 Datacoupler links any digital tape recorder in record or playback mode with multichannel analog or digital sources, computers, telephone data sets, or Teletype equipment. Other options permit performance of data reduction tasks such as automatic tape search, input of selected data to computers or printers, or data conversion for quick look oscillographic display. Most options consist of one or more printed circuit cards. Circuitry of the Model 1000 is entirely solid state, utilizing silicon semiconductors. Delivery is 60-90 days. Datatron, Inc., 1636 E. Edinger Ave., Santa Ana, Calif. 92705.

## Two Form Firm In Maryland for Consulting Work

ROCKVILLE, Md. — Richard A. Coles and David S. Hirshfeld, both formerly with Computer Applications, Inc., have formed Management Science Systems, Inc. here.

The new company will specialize in education and consulting in the application of computer technology to business, engineering, and economic problems, and will develop proprietary computer program packages for mathematical and statistical analysis, linear programming, information management and retrieval, and economic analysis, they said.

Coles will serve as president while Hirshfeld will direct the company's consulting activities in operations research and management science.

## New IBM Field Systems Center to Open in Raleigh

RALEIGH, N.C. — IBM will open a field systems center here to serve as a demonstration and information site for the company's teleprocessing products and programs.

The center will comprise a computer room and educational facility two miles northeast of downtown Raleigh and a demonstration center in the Research Triangle Park about 20 miles northwest of the city.

## RCA Gets \$14.5 Million WU Contract to Help Modernize Military DOD Autodin Network

NEW YORK — RCA has received a \$14.5 million contract from Western Union to develop new equipment for modernization of the Defense Department's Autodin Communications Network.

The RCA Defense Communications Systems Division, Camden, N.J., will build integrated circuit communications data processors and mass memory units for installation in nine Autodin switching centers in the U.S.

Western Union is prime contractor to the Department of Defense for continental United States Autodin, which links about a thousand subscribers comprising the military services, commercial and other government agencies in one nationwide data communications system.

Through Autodin, messages are sent from one station to another at high speed although the sender and receiver may be using different methods of communication.



# Drug Wholesaler's Business Is Tiptop

HACKENSACK, N.J. — The Bergen Drug Co., believing that retail pharmacies would buy more from a wholesaler who provided special services, introduced a billing service for customer charge accounts five years ago.

Now, EDP services provide 25% of Bergen's profits, and the computerized billing service has caused more pharmacies to buy from Bergen.

## Close Relationship

Bergen, which sells to the New York metropolitan area, tries to maintain a close relationship with retail pharmacies by offering a wide range of services.

Like other wholesalers, it provides financing. But Bergen also offers site evaluation, market research, store planning, and general advice, and encourages pharmacists to call with such problems as buying or selling a store and hiring extra help.

Several years ago, druggists started to ask for help locating bookkeepers to handle an increasing load of charge sales.

"We had assumed that charge sales were something you just tolerated," said Elmer Fiery, manager of special services at Bergen. "But we looked into it and found there was a definite trend in this direction."

In addition, pharmacists complained that customers increasingly demanded tax and insurance information.

## Tiptop Started

In response, Bergen developed Tiptop

(tax information plan — total owed purchases), a special billing system for pharmacists.

A statement bearing the name of the pharmacy at which the customer charges his purchases is mailed to Tiptop customers each month. The statement lists separately the amounts purchased in that month which qualify as income tax deductions.

Deductible purchases, up-dated for the year, are given in a total on each monthly statement, encouraging the customer to concentrate his health purchases at the Tiptop pharmacy. The December statement contains the total of deductible purchases for the year and is a ready reference at tax time.

## Each Account Shown

Each month, the Tiptop pharmacist is sent a complete account analysis, listing every account on his books and showing the total owed by each customer. This total is also broken down to show current purchases and amounts owed for 30, 60, and 90 days. The date and amount of last payment is also shown. Finally, the number of consecutive months during which a customer had a balance owed for 90 days or more is recorded on the pharmacist's statement.

Also supplied on the analysis is a percentage breakdown of total receivables for each 30, 60, and 90 day period. To enable the pharmacist to compare his collection rate with other pharmacies, the statement con-



A conveyor belt that speeds records on their way is one of a number of procedures the company is using to increase its data processing efficiency.

tains the average for the same periods, in percents, for all Tiptop pharmacies in his area.

Tiptop costs the pharmacist about 20 cents per account. It is strictly a billing service; the pharmacist makes all credit decisions and receives all payments.

## Business Increased

While liberating the druggist from tedious and time consuming work, Tiptop also

increases his business. According to Bergen, this is because a charge customer spends 2-1/2 times as much as his cash counterpart. As one druggist put it, "The charge customer is my customer. The cash customer belongs to anyone."

Tiptop has increased Bergen's drug business, too. Drug wholesaling is a competitive business with several wholesalers offering the same items in the same area. While some druggists deal exclusively with one wholesaler, many prefer to buy from more than one. Fiery said that the introduction of Tiptop has caused some pharmacies to open new accounts with Bergen, while others already dealing with Bergen have purchased more.

Bergen now franchises Tiptop in 46 states to other drug wholesalers who, in turn, offer it to their pharmacy customers. More than three million customers are now served by Tiptop, over 80% through franchised wholesalers.

Charge sales in pharmacies continue to grow. More than 90% of all pharmacies in the country do some sort of charge business compared to 75% doing such business six years ago. Nationally, pharmacists using Tiptop report an annual growth in charge sales of 23% and a decrease in delinquent accounts of 14% annually.

## Factoring Plan Begun

Increased charge sales mean that the druggist has more money tied up in receivables. On the average, payment is received 60 days after the purchase. Consequently, Bergen has begun factoring receivables under a plan called Total Tiptop.

Participating pharmacists receive payment from Bergen for customer charge purchases every two weeks. Cost to the druggist is based on his dollar volume, the size of the average account, and how long it takes to collect. Fiery claims that the cost to the druggist is "competitive with credit card and bank plans."

Under Total Tiptop, the pharmacist still makes the decision as to whether or not to extend credit, but the customer sends his payment to a central office.

Total Tiptop has proved even more profitable for Bergen than Tiptop, because it makes money both from the factoring and from the data service.

## EDP Use Extensive

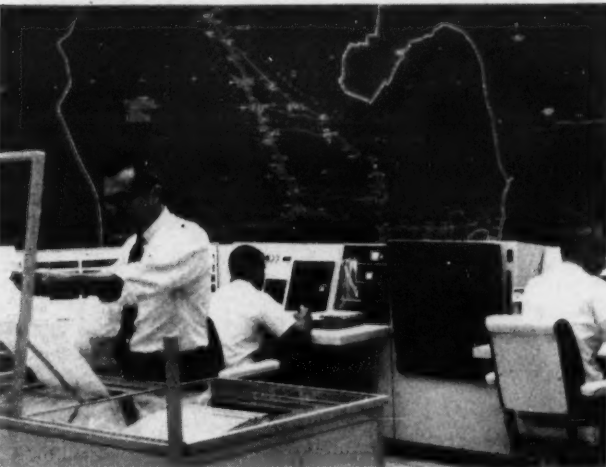
Bergen has made extensive use of electronic data processing. In 1949, it was one of the first drug wholesalers to keep inventory controls with a tabulator and punch cards. In 1960, it was one of the first to install a computer.

Having a computer made it easier for Bergen to introduce Tiptop because the computer start-up expenses had been paid out of the wholesale drug business. Fiery noted, however, that other drug wholesalers have used Tiptop to help justify the installation of a computer.

# This Monitor System's Job Is a Gas

JACKSON, Mich. — A computer has been placed in the role of an electronic watchdog here, guarding against interruption of gas company's service area. Using multiple leased telephone lines, the computer takes continuous readings from these instruments, measuring such things as gas pressure, density, temperature, and specific gravity. It alerts technicians when any of these exceed pre-established levels.

Every two minutes, an IBM 1800 data acquisition and control system scans more than 600 checkpoints from the Consumers Power gas control station in an underground dispatching center here. The checkpoints consist of measuring devices located in 86 gas



Herb Young, left, gas control supervisor, reads a printout summarizing the latest computer check on 600 control stations. The summaries, prepared every two minutes, are used for adjusting the flow of gas through thousands of miles of gas mains.

metering, gas regulating, and gas compressing stations across the company's service area.

Using multiple leased telephone lines, the computer takes continuous readings from these instruments, measuring such things as gas pressure, density, temperature, and specific gravity. It alerts technicians when any of these exceed pre-established levels.

## Weather Watch

During winter months, special weather forecasts are fed into the computer throughout the day. Based on these forecasts, the computer calculates the probable increased demand for gas and suggests to technicians what steps should be taken to assure an adequate supply for the duration of the cold spell.

The computer is linked to six printers that provide a summary on all instrument readings every two minutes. If the computer detects a potential problem, an alarm light is turned on, pinpointing the location of the condition requiring attention.

## Automatic Adjustments

At present, technicians take this computer printout of gas line instrument readings and make adjustments manually. Eventually the company plans to have the computer system control gas pressure directly, thus eliminating the delay between the computer sensing of an irregularity and manual adjustments. The system is capable of making its own adjustments over the same leased telephone lines used to receive instrument readings, according to Eugene B. Hedges, executive manager of operations.

Computerized gas monitoring has enabled the company to improve the efficiency of its operations, he said, and this is important to customers, particularly when demand is at its peak.

"During the coldest day of the year, this past January," Hedges said, "we pumped a record 1.7 billion cubic feet of gas through the lines. No customer lacked for gas, and we had supplies to spare. But it takes a well-managed system to do it."

# Computer Center Speeds State Department Messages

WASHINGTON, D.C. — The U.S. State Department uses a high speed communications system to channel 10,000 messages a day to 300 diplomatic posts around the world.

The heart of the new communications center is a specialized electronic switching system designed, built, and installed by ITT Defense Communications. The center, built around ITT's 7300 ADX Automatic Data Exchange communications switching system, also processes messages into the diplomatic telecommunications system for the White House, the United Nations in

New York, and certain government agencies in the Washington area.

A major feature of the communications center is a room equipped with 10 CRT terminals. Editing is done by typing instructions via the keyboard. State Department analyst operators call up messages from the communications center's electronic brain, display them for editing, and then send them on their way through the system.

Time savings are extremely significant in the analyst display room, where messages previously were edited with a pencil, and

then retyped. With an eye toward future expansion, ITT designed the room so it can accommodate an additional six display units as required.

Edited messages are transmitted by high speed printers at up to 1000 lines a minute into the department's print shop. The printout is a Multilith master sheet which can be quickly inserted on a printing press for rapid reproduction of the quantities of copies required for distribution within the department.

A complete mailing operation is maintained in the print shop.



# Systems Analysis Aids Wildlife Conservation

BATON ROUGE, La. — Modern business management techniques are being used here to preserve and improve the state's wildlife while, at the same time, improving the hunting and fishing for sportsmen.

"Just as a continually decreasing 'margin for error' has forced the businessman to quit 'flying blind' and to develop information systems which keep him on top of and in control of all aspects of his business, so it is with wildlife management today," said Joe L. Herring, chief of the Fish and Game Division, Louisiana Wildlife and Fisheries Commission.

"In fact, in a country once bountifully blessed with game and space, we worry that we already have waited so long that no margin for error remains if we are to preserve for our children sports afield as we know them," he said.

But in Louisiana, the electronic computer is earning the sportsman's respect as one of his most useful allies — almost as essential to his success as the nimrod's trusty gun and dry ammunition or the fisherman's "lucky hunch," Herring said.

## Longer Seasons

"While we're hardly to the point of issuing daily communiques advising precisely where to catch fish or bag game on a given day in a given location, our Univac



A trapped deer is carried away for relocation to another area of the state.

1004 has, beyond question, improved hunting and fishing in Louisiana," he said.

Thanks in large measure to the computer:

• Louisiana now enjoys a 70 day dove season. Hunters have in each of the last two years boomed down more than 1,500,000 of the darting, graceful "Gray Ghosts" of the field. This is 50% more than in earlier

years when the law allowed fewer days to hunt.

• Louisiana now has an experimental September teal duck season. Until 1966, teal could be hunted during the winter duck season only.

• Does have been made fair game along with bucks in many wildlife areas. This has been done with confidence. A regulated doe harvest will improve rather than dwindle the herds by keeping overpopulated herds in balance with forage provided by nature, Herring said.

• Deer hunting, restricted to only 20% of the state 15 years ago, now is enjoyed on 80% of the state's 15,000,000 acres of timberland and 6,000,000 acres of marshland as a product of a scientific relocation and propagation program. The kill has grown from 5525 in 1960-61, the first year of the Louisiana Big Game License, to 25,000 to 30,000 a year today. More than 100,000 Louisianans go to the field each year to test their mettle against the United States' most universally popular "big game."

• Several of the state's more productive fresh and salt water fishing grounds have been saved from flood control, construction, or industrial projects or practices which certainly would have ruined them.

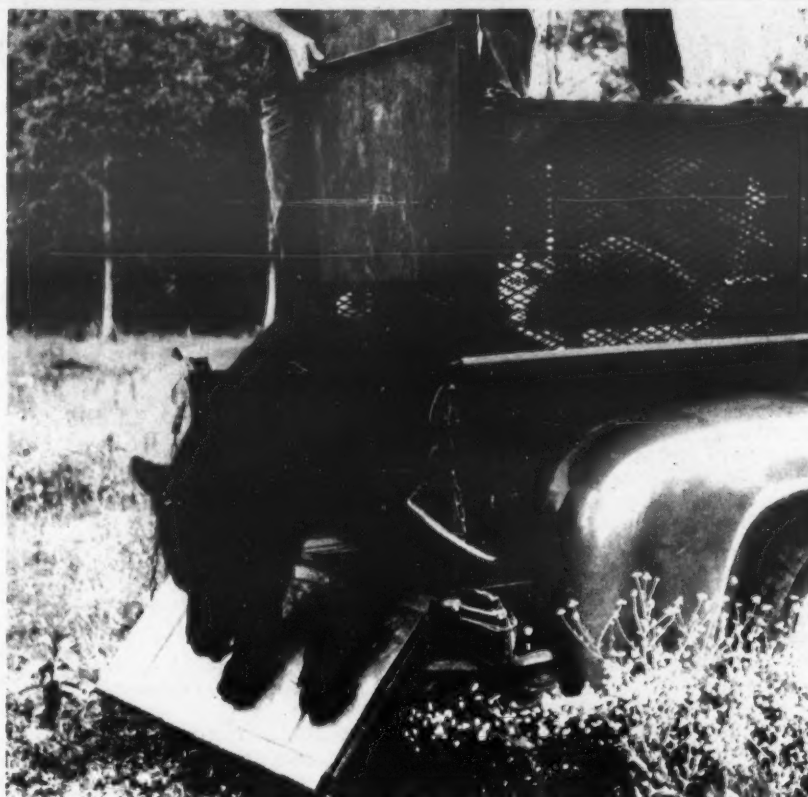
"The computer has helped us do these things by putting our fish and game management concepts — as well as our research — years ahead of where they would be today had we not had the benefit of data processing since 1954," Herring said.

"Over the years, we have developed techniques for capturing and extrapolating data — within the computer — so that we have a reasonable estimate at all times as to game and fish inventories, previous season kill and anticipated kill in the coming season, number of hunters and fishermen making use of our outdoor resources and how, and, perhaps most significantly, where our game is located and where more is needed."

## Less Paperwork

Having a computer available specifically to make wildlife studies and serve game management has made it possible for the division's field staff of 40 biologists to concentrate on the creative parts of their jobs and less on bookkeeping, Herring said.

For example, each year, the division punches into cards data describing each bird banded under a continuing program. Each time the division is notified that a



A bear is released after being tagged by wildlife officials.

banded bird has been bagged, or captured, the bird's records are updated. From the cards, all sorts of analysis and extrapolations can be run: census of each specie, including some 8,000,000 ducks and geese; birds killed more or less than 200 miles (or any distance) of point of release; birds banded here and killed in other states, vice versa, and so on.

"Each year, we mail queries to deer hunters and ask them to tell us where they hunted, success achieved, and other details of their hunts," Herring said. "From the returns, we are able to pinpoint kill by parish with reasonable accuracy. Aside from helping hunters decide where they have the best chance of getting game next year, these figures — checked against census extrapolations — guide us in setting hunting policies and season durations in the following year. They also show where deer should be taken from and where they should be placed as we continue to trap and relocate deer."

Louisiana was among the first states in the nation to use a random sample "telephone query" technique to gather data about dove kill. By developing programs to extrapolate random telephone samples accurately into meaningful total kill figures, the division learned more about doves, dove hunters, and dove inventory. This led to a longer season with, happily, more doves available for hunting throughout the season's duration.

## Annual Analysis

Each year, each game management area presents game survey figures based on observations, browse studies, etc. which are summarized by the computer by area and in total to give a comprehensive picture of what is happening to the game.

Throughout the year, field personnel check fishermen and send in fresh water creel census data. The information is used for reports on stocking rates in individual bodies of water, whether fish inventory is declining or increasing, condition of the fish, etc.

Department personnel also seine, net, and otherwise sample salt water fishing grounds throughout the year and report on types and numbers of fish found under varying conditions of turbidity, salinity, depth, and water temperature. This sampling program generates some 100,000 cards a year. The file becomes both bigger and more valuable every year.

"By analyzing seasonal habits of certain fish year after year, we learn more about them and also more about how and where to catch them. With this data 'banked,' it is

easy for us to calculate accurately the impact on fish and wildlife of any proposed flood control or similar project and, when necessary, argue more persuasively for the sportsman's interest," Herring said.

## Importing Wildlife

Aside from showing us what is happening with the game, the studies have led to programs to add additional game to enrich the sportsman's life in a state which already has hunting from September (dove) through April (turkey).

One of these projects has resulted in establishment of the only black francolin population in the United States. This game bird, about twice the size of the quail and a native of Pakistan, has been proliferating since 1960 on two Louisiana plantations. "We now are ready to start francolin flocks in other areas, hoping soon to open a



A wild turkey hen is banded by Fish and Game Division officials.

season on a bird that can be found nowhere else on this continent," Herring said.

"Similarly, we're raising a herd of Allow deer, native of Asia, and we've been bringing black bear from Minnesota to bolster our own native population. The idea behind all this is not to replace game we already have, but we must look realistically at what is happening in our lands. We believe areas that no longer are suitable for game which has thrived on them in years past can still be made productive for the sportsman by introducing other game which these areas will support. The aim is to make every available acre yield as much recreation as possible," he said.



Wildlife officials catch a sample of fish to help determine fish migrations and areas of abundance.



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# Documentation Rewritten Into 'English'

FORT LEE, N.J. - A new approach to automatic documentation of computer programs, which permits both programmer and manager to understand the workings of a program, has been developed by Data Usage Corp. Called Documatic, the system produces English language descriptions, rather than programmer oriented flow charts, for applications written in IBM 360 Report Program Generator (RPG) language. The system, currently available on the 360/20, is said to be the first documentation system for small computer users.

There seems to be little relationship between the documentation produced by Cobol and other compilers, and the type produced by Documatic. Documatic uses a general "rewrite" technique rather than simply making a copy of the input cards (see picture). It also may be an alternative to some of the automatic flowcharting techniques which have become popular in the past year.

### Output

Output from Documatic is in six different sections:

- The System Pictorial shows in flow chart form what data files are input and output to the system.
- Input Narrative describes, in English, the nature of the input files including such factors as record length, blocking, record identification codes, and control fields.

- Input Record Layout shows, in pictorial form, the organization of all input records including fields and subfields.

- Description of Processing details each calculation required with prior conditions spelled out.

- Output Narrative and Output Record Layout serve functions comparable to their input equivalents.

The currently available version documents programs written for 360/20 card, tape, and disk configurations. It can run on a Model 20 with an 8K memory, any card reader, and printer.

## Sample of Documatic Output

DATA USAGE CORPORATION

DEMONSTRATION PROGRAM

THIS PROGRAM HAS 3 INPUT FILES, DESCRIBED BELOW

FILE -MASTER- IS READ IN FROM TAPE, ON SYMBOLIC UNIT SYS009. RECORDS ARE FIXED LENGTH, BLOCKED 10, 96 BYTES LONG. LABELS ARE STANDARD. THERE ARE 3 DIFFERENT RECORD TYPES POSSIBLE WHICH, IF PRESENT, MUST APPEAR IN THE ORDER SHOWN.

TYPE 1 - A B IN POSITION 5. EXACTLY ONE OF THIS TYPE SHOULD APPEAR IN EACH GROUP.

TYPE 2 - AN H IN POSITION 5 AND A BLANK IN POSITION 13.

TYPE 3 - AN H IN POSITION 5 AND NO BLANK IN POSITION 13. THIS TYPE CAN BE INTERSPERSED WITH TYPE 2.

FILE -TRANSACT- IS READ IN FROM CARDS. ALL RECORDS MUST HAVE A P IN COLUMN 5. ALL CARDS SELECT INTO STACKER 3.

FILE -TERRITORY-, A TABLE, IS READ IN FROM CARDS. THE TABLE, CALLED -TABTER-, CONSISTS OF 23 ENTRIES STORED IN ASCENDING ORDER, EACH 4 BYTES IN LENGTH. INTERLEAVED WITH -TABTER- IS A SECOND TABLE CALLED -TABDSC-. EACH OF ITS NUMERIC ENTRIES IS 3 BYTES LONG WITH AN IMPLIED DECIMAL POINT 2 POSITIONS TO THE LEFT. THEY ARE STORED IN ASCENDING ORDER. THESE TABLE ELEMENTS ARE READ IN GROUPS OF 10 ITEMS PER RECORD.

THE PROGRAM HAS 2 CONTROL BREAKS WHICH CAUSE APPLICABLE PROCESSING AND TOTAL TIME OUTPUT TO BE EXECUTED IMMEDIATELY.

A LEVEL 1 BREAK OCCURS WHEN THERE IS A CHANGE IN ACCTNO.

A LEVEL 2 BREAK OCCURS WHEN THERE IS A CHANGE IN ITMCD. HOWEVER, WHEN PROCESSING -MASTER- TYPE 3 RECORDS, IT OCCURS WHEN THERE IS A CHANGE IN PRDOD.

IN ADDITION, THE PROGRAM USES THE MATCHING RECORDS APPROACH OF HANDLING INPUT FROM MANY FILES. IT READS FROM THESE FILES AND CHOOSES FOR PROCESSING THE RECORD FROM THAT FILE WHOSE MATCHING FIELDS CONTAIN THE LOWEST VALUE. WHEN AN EQUAL, I.E. MATCHING RECORDS, CONDITION OCCURS THE PRIORITY OF FILES IS -MASTER-, -TRANSACT- IN THAT ORDER. FIELDS USED IN MATCHING ARE SHOWN ON THE INPUT RECORD LAYOUT WITH \*MN\* FOLLOWING THE NAME.

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### 360 DOS Date Routine

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## Do New Fees Mean ACM Is In the Red?

NEW YORK - The possibility that ACM may actually be "in the red" has been raised by informed sources as an explanation of the increase in the charges for some services. The ACM financial position has been undergoing a transition to cost center accounting for the past two years, and as a result some questions as to the meaning of various budget items have not been resolved.

The argument runs that while at the end of June ACM had \$300,000 in the bank, the liabilities (primarily for unfulfilled memberships) amounted to nearly \$400,000. No comment on this could be obtained from ACM headquarters by press time.

### How Many Periodicals?

The first obvious results of the economies will be when the number of periodicals automatically received by members drops from three to two at the beginning of

next year. While officially the number of publications automatically supplied to members increases with the addition of the new survey, tutorial, and news publications, these are to be bound inside the ACM *Communications* and *the Computing Review*. Meanwhile, the *Journal* is to be dropped from general distribution.

### Seminar Fees Increased

Another change will be in the prices charged for professional development events. The fees have been upped by an average of \$5 per attendee. In some cases the charge for a nonmember is more than enough to pay for a complete year's membership.



COMPUTERWORLD  
societies

## Special DP Interest Group Gets Advisory Committee

NEW YORK - A technical advisory committee has been formed for the new ACM Special Interest Group on Business Data Processing. Members will be Charles W. Bachman of GE, Phoenix; Richard G. Canning, publisher of EDP Analyzer; Paul J. Dixon, of Auerbach Corp.; Fred C. Iherer of Compress, Washington, D.C.; William C. McGee of IBM, Palo Alto, Calif.; and Donald B. Pierson, a consultant on business applications.

### IEEE Seeks Papers On Real-Time Systems

MINNEAPOLIS - The IEEE Computer group has issued a call for papers for the 1969 conference to be held here June 17-19.

The conference theme will be "Today's World of Real-Time Systems." Sessions will explore systems for process control, message switching, inventory control, time sharing, command and control, and biomedical computing.

Further information may be obtained by writing to the technical program chairman: Donald L. Epley, Department of Electrical Engineering, University of Iowa, Iowa City, Iowa 52240.

### Computer Seminar Planned On Printing Techniques

NEW YORK - "What Printing

Management Needs to Know About the Computer" will be the theme of an all day seminar here Sept. 10.

The session, being held by Printing Industry Computer Associates in conjunction with Printing Industries of Metropolitan New York, will cover the fundamentals of the computer and data processing systems for printers of all sizes.

The fee will be \$100. Additional information on the CompuClinic may be obtained by writing to: Printing Industry Computers Associates, Inc., Nassau Building, 228 Alexander St., Princeton, N.J. 08540.

### Service Bureaus Seen Offering Typesetting

NEW YORK - The preparation of data for input to typesetting equipment will become another general service of DP service bureaus, Harry Sedgwick, president of Sedgwick Printout Systems, told a recent meeting of Adapso here.

"We see no advantage to the market or to ourselves in entering the data processing field," he said. "We collaborate with a number of different data processing service companies and have found that this method of operation offers economic and reliable service."

### calendar

Sept. 9-13, Houston, Texas - Joint Fall Conference Univac Users Assn. & Scientific Exchange. Contact: Robert H. Beaton, Neisner Bros., Inc., 49 East Ave., Rochester, N.Y.

Oct. 6-10, Montreal, Canada - 10th Annual EDP Conference and Retail Research Institute. Contact: Ethel Langtry, National Retail Merchants Assn., 100 W. 31st St., New York, N.Y. 10001.

Oct. 8-10, New York, N.Y. - "Course on Project Leadership." Contact: Tom Gildersleeve, Computer Usage Education, 51 Madison Ave., New York, N.Y. 10010.

Oct. 10-12, Overland Park, Kan. - DPMA Division 4 Fall Conference. Contact: DPMA Kansas City Chapter, P.O. Box 2425, Kansas City, Mo. 64142.

Oct. 20-23, St. Louis, Mo. - 1968 International EDP Conference. Contact: SPA, 24587 Bagley Rd., Cleveland, Ohio 44138.

Oct. 24-25, Detroit, Mich. - Adapso 24th Management Conference. Contact: Jerome L. Kreyer, Adapso, 420 Lexington Ave., New York, New York 10017.





COMPUTERWORLD

## financial

## Earnings Reports

## PHOTON

WILMINGTON, Mass. — Photon, Inc.'s net earnings for the first six calendar months fell to \$402,439 (45 cents a share) from \$798,121 (96 cents a share) for the same period a year ago. Sales, however, were up \$500,000 to \$6.1 million.

Outstanding shares were increased recently by a 4-for-1 stock split.

The cost of bringing out new products and building the organization internally to handle increased volume was responsible for the lower earnings, Photon President Robert M. Campbell said, but he predicted that 1968 would be the best year in the company's history.

## NATIONAL EQUIPMENT

FLORAL PARK, N.Y. — Net income for National Equipment Rental Ltd. rose 6.6% to \$973,000 (33 cents a share) in the second calendar quarter on revenues of \$4.6 million, up from \$3.5 million.

First half earnings increased to \$1.6 million (55 cents a share) on gross revenues of \$7.8 million.

## CALCOMP

ANAHEIM, Calif. — California Computer Products, Inc. has achieved earnings of \$1,209,000 (55 cents per share) on total income of \$16,648,000 for the fiscal year ended June 30, based on unaudited figures. Earnings for the previous fiscal year were \$1,156,000 (61 cents, adjusted for a 2-for-1 stock split in November, 1967) on total income of \$11,318,000.

## MAGNETICS

BUTLER, Pa. — Magnetics, Inc. has announced record sales for the first six months of \$5,868,390, up 16% from last year's figures, and net income of \$526,892 (45 cents a share).

## COMPUTER USAGE

MT. KISCO, N.Y. — Earnings for the first nine fiscal months ended June 30 for Computer Usage Co., Inc. were \$154,367 (20 cents a share) on revenues of \$10,714,195, compared with the previous nine month earnings figures of \$411,603 (58 cents a share) on revenues of \$9,933,335.

## CLARY CORP.

SAN GABRIEL, Calif. — Clary Corp. had net income of \$538,000 (52 cents a share) on revenues of \$5,823,000 for the first six months of 1968, compared with 1967 first half earnings figures of \$280,000 (28 cents a share) on revenues of \$5,023,000.

## BOOTHE COMPUTER

SAN FRANCISCO, Calif. — Boothe Computer Corp. has announced net income for the second calendar quarter of \$232,825 (17 cents a share). The six months figure includes an extraordinary item of \$92,721 realized in the first quarter, which represents a reduction of federal income tax for 1968 resulting from a carry-forward of the 1967 loss from operations of \$175,608, the company said.

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## Stockholders Okay Merger Of Computer Leasing Firms

DALLAS — Stockholders of both Computer Leasing Co., Washington, D.C., a 60% owned subsidiary of University Computing Co. here, and Standard Computers Inc., Philadelphia, have approved a merger of the two companies into a new firm to be known as Computer Leasing Co.

Computer Leasing President R.D. Holland said he expects to receive a favorable ruling from the Internal Revenue Service on the merger.

Computer Leasing stockholders will exchange their stock for stock in the new concern on a one for

one basis. Stockholders of Standard Computers, whose business is similar to that of Computer Leasing, are to receive 1.9 shares in the new firm for each common share held.

Holland said that the new company will "certainly be in the top three or four" companies leasing computers and related equipment in the U.S. Since Jan. 1, the value of equipment leased by Computer Leasing had nearly doubled to \$53 million and the value of equipment leased by Standard Computers was between \$45 million and \$50 million, he said.

## Leasco Bid for Reliance Is Approved

GREAT NECK, N.Y. — The Securities and Exchange Commission has approved the registration statement concerning a tender offer by Leasco Data Processing Equipment Corp. for the acquisition of Reliance Insurance Co. in Philadelphia.

Leasco Chairman Saul P. Steinberg said that, unless extended, the tender offer would expire Sept. 10.

## Offer Once Opposed

At one point, Reliance announced publicly that it was opposed to any Leasco takeover and that it would prefer a merger with Data Processing Financial & General Corp. instead. Reliance even went into U.S. District Court in Philadelphia in an effort to block the attempted Leasco bid.

Soon afterwards, however, Reliance dropped both

its suit and its active opposition to the Leasco bid after Leasco revised its tender terms.

## Revised Terms

The revised Leasco tender terms provide for the issuance of one share of cumulative convertible preferred Leasco stock, paying \$2.20 per share per annum and having a liquidation value of \$55, plus one half warrant to purchase a share of Leasco common stock at \$87 per share in exchange for each share of Reliance stock held. The preferred stock would be convertible into Leasco common stock at \$90 per share.

The revised proposal differs from the previous offer only in that the previous proposal involved the issuance of Leasco convertible subordinated debentures instead of preferred stock.

## Acquisitions

## Computer Planning Corp. To Buy On-Line Sciences

TORRANCE, Calif. — Computer Planning Corp. has signed an agreement in principle to acquire On-Line Sciences, an on-line telecommunications software firm, in a stock transaction of undisclosed amounts.

This is the second acquisition of the eight month old CPC which specializes in software development, proprietary packages, service center, and consulting and training.

## Magnetics Buys Rundel Electric

BUTLER, Pa. — Magnetics Inc. has purchased all the stock of Rundel Electric Co. in Millbrae, Calif., an electrical control systems manufacturer, for an undisclosed cash price.

Magnetics has also agreed in principal to buy Vanguard U.S., a Rundel affiliate that makes motor controls.

## Mohawk Completes Buy

HERKIMER, N.Y. — Mohawk Data Sciences Corp. has announced that it completed the acquisition of the H.M. Storms Co. for 23,453 shares of common stock.

## Management Data Plans To Buy Meridian

PHILADELPHIA — Management Data Corp. plans to acquire Meridian Management, Inc. in New York City, a management consulting firm, for an undisclosed amount of stock. The acquisition is subject to the approval of both boards of directors.

The proposed agreement does not encompass or involve Meridian Engineering, Inc. headquartered here, the original holding company of Meridian Management.

Gilbert N. Zitin, Management Data president, said that Meridian is expected to team up with Management Services International, another recent MDC acquisition, in providing a complete computer oriented service that will cover all consulting and software phases.

## Pioneer Texas Merged Into DPA, Inc.

DALLAS — Pioneer Texas Corp. has been merged into DPA, Inc., a lessor of computers and other data processing equipment. Pioneer stockholders will receive 4/10 of a share of a new \$1.60 series B convertible preferred DPA stock for each share of Pioneer common stock held. Approximately 133,000 of the new shares are to be issued in the transaction.

## Cybernetic Applications Buys, Renames Company

NEW YORK — Cybernetic Applications Inc., a software firm, has acquired the New York based data processing consulting firm of Campos, Katz & Associates, Inc. as a wholly owned subsidiary and changed the firm's name to Proprietary Systems, Inc.

Miss Roberta Campos, president and founder of the newly acquired firm, has joined CA as a vice president for operations. Gerard Van Dijk, formerly vice president of Campos-Katz, has become a vice president for marketing of CA.

## Comtel Corp. to Acquire DTL, SSCO Standards

DETROIT — Detroit Testing Laboratory, Inc. has announced approval in principle to the merger of DTL and its wholly owned subsidiary, SSCO Standards, Inc. into Comtel Corp. DTL stockholder approval is needed before the transaction can be completed.

Under the terms of the agreement, each of the 394,900 total outstanding DTL shares will receive 3/4 of a share of Comtel Corp.

Comtel is a total systems science company engaged in communications, computer, education, and industrial applications.

## Mauchly Associates to Buy Julien Green Associates

MONTGOMERYVILLE, Pa. — Mauchly Associates, Inc. has reached an agreement in principle to acquire Julien Green Associates, Inc. in Trenton, N.J., a developer of software for time sharing systems, for 8000 shares of Mauchly common stock.

Mauchly, active in computer technology and services, software development, and project and resources management, recently announced an agreement to be acquired by Sunasco Inc., located in Philadelphia.

## Petroleum Information Bought by Research Firm

DENVER, Colo. — A.C. Nielsen Co. has concluded an agreement in principle to acquire Petroleum Information Corp. through an exchange of stock. The value of the exchange was not disclosed.

PI, a Denver based compiler and publisher of computerized data used by oil and gas companies in drilling and production operations, will be operated as a wholly owned Nielsen subsidiary without change in management or policies, the announcement said.

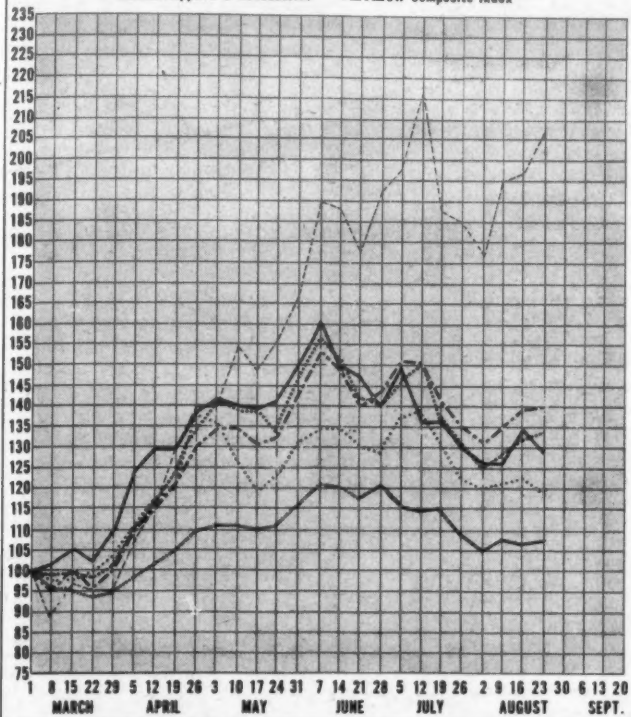
## DRC Buys Alabama Firm

STONEHAM, Mass. — Dynamics Research Corp. has acquired all outstanding stock of Applied Analysis, Inc., a small Huntsville, Ala., systems facility whose major capability is the solution of optimization problems using the digital computer. Details were not disclosed.



## Computer Stocks Trading Index

Computer Systems      Software & EDP Services  
 Peripherals & Subsystems      Leasing Companies  
 Supplies & Accessories      CW Composite Index



## Market Up, Leasing Computers Are Off

In a week of surprises, *Computerworld's* Composite Stock Index closed Aug. 23 at 140, up 1 point (0.7%) as the stock market generally advanced in spite of the Soviet invasion of Czechoslovakia.

Five other leading market indicators also closed higher: the Dow-Jones industrial average closed at 892.34, up 6.45 points (0.6%); the New York Stock Exchange composite average, 55.39, up 0.04 (0.7%); the American Stock Exchange price index, \$28.78, up 14 cents (0.5%); the Standard & Poor's industrial average, 107.43, up 0.05 (0.5%); and the N.Q.B. over-the-counter industrial average, 405.61, up 3.78 (0.9%).

### Total Volume Up

While volume on the NYSE fell slightly for the week from 45,819,790 to 45,594,460 shares, volume on the American Stock Exchange rose from 20,047,160 to 21,967,598 shares for a combined volume increase of 1,695,108 shares.

Among the week's 20 most active stocks on the NYSE were Control Data, 1st, which closed down 17.17% at 128 on 1,392,000 shares traded; Raytheon, 11th, up 6.59% to 38-3/8 on 282,000 shares traded; and Sperry Rand, 17th, up 0.54% to 46 on 236,000 shares traded.

The tremendous activity in Control Data stock was apparently the result of a sale of approximately 374,000 shares by the Manhattan Fund, although fund officials declined to comment. A number of other institutions also unloaded large blocks of the stock.

### New Highs, Low

Among the *Computerworld* listed stocks, three issues closed at new highs for the year and one issue closed at a new low: Datamation Services closed up 3.81% at 27-1/4; National Computer Analysts, up 12.07% to 65; and Leasco (which has made a bid for Reliance Insurance Co.), up 8.56% to 95-1/8; while Bolt, Beranek & Newman closed down 9.09% at 15.

Of the *Computerworld* listed stocks, 41 advanced, 54 declined, and one remained unchanged. The previous week, 60 issues advanced, 28 declined, and nine remained unchanged.

Overall on the NYSE, 806 issues rose, 721 fell, and 127 remained the same, versus the previous week's score of 1038 up, 507 down, and 132 unchanged. A total of 146 issues reached new highs and 46 dropped to new lows, as against the previous week's 134 new highs and 40 new lows.

Volume of advancing issues on the NYSE was 6,010,000 shares. Declining issues numbered 2,830,000 shares. On the AMSE, the volume of gaining issues was 3,070,000 shares. Declining issues numbered 1,300,000 shares.

### CW Indexes Mixed

The *Computerworld* stock sector indexes showed mixed activity with the Computer Systems index down 5 points (3.7%) to 128 and the Leasing index down 4 points (3.2%) to 119.

The Peripherals & Subsystems index closed at 134, up 2 points (1.5%); the Supplies & Accessories index closed at 108, up 1 point (0.9%); and the Software & EDP Services index closed at 208, up 11 points (5.6%).

## COMPUTER STOCKS: TRADING SUMMARY

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	183 3/8	220-187	208 1/4	Burroughs	+ 1 1/8	+ 0.54	+ 27.66
NYSE	87 3/4	110-94	57 5/8	Collins Radio	+ 3 3/8	+ 8.22	+ 14.06
NYSE	101 1/2	174-96	128	Control Data	- 26 1/2	- 17.17	- 26.10
AMSE	102	180-96	127	Digital Equipment	- 1	- 0.72	+ 34.31
NYSE	87 1/4	100-81	83 1/4	General Electric	+ 1 1/8	+ 1.37	- 4.98
NYSE	80	91-59	79	Hewlett-Packard	- 1/2	- 0.68	+ 26.67
NYSE	93 1/8	144-89	114 1/2	Honeywell	- 8 3/4	- 4.78	+ 22.96
NYSE	288 1/2	376-280	338 1/4	IBM	- 2 1/4	- 0.68	+ 17.24
NYSE	103 7/8	153-90	127	National Cash Register	- 2 1/8	- 1.86	+ 23.30
NYSE	48 7/8	56-44	47 1/4	RCA	- 1/2	- 1.06	+ 0.80
NYSE	39 1/8	53-34	38 3/8	Raytheon	+ 2 3/8	+ 6.89	- 1.97
OTC	22 1/2	26-20	44	Scientific Controls Corp.	- 4 1/4	- 3.22	+ 95.60
NYSE	78 3/4	114-72	91 1/2	Scientific Data	- 4 1/4	- 4.44	+ 18.19
NYSE	45	52-42	48	Sperry Rand	+ 1/4	+ 0.54	+ 2.22
AMSE	22 1/2	30-20	26	Systems Engineering Labs.	- 2 1/2	- 8.19	+ 24.44
EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	98 3/8	91-82	80 1/4	Addressograph-Multigraph	- 2	- 2.43	+ 37.47
OTC	21	25-18	22	Alphametric	+ 1	+ 1.76	+ 178.11
NYSE	26	37-26	32	Ampex	+ 2 3/8	+ 8.82	+ 10.34
OTC	17 1/4	27-15	16	Bolt, Beranek & Newman, Inc.	- 1 1/2	- 9.09	- 13.86
NYSE	13 1/2	20-12	18 3/4	Bunker-Ramo	- 1/4	- 1.47	+ 24.07
AMSE	24 1/8	30-27	35 5/8	Calcomp	- 7/8	- 2.40	+ 10.89
OTC	12	17-10	43	Cognitronics	- 6	- 12.24	+ 75.51
OTC	15 1/4	23-13	15 1/4	Computer Equipment	+ 1 1/8	+ 7.96	+ 27.06
OTC	19 1/4	27-16	23	Data Products	- 1 1/4	- 7.26	+ 3.27
OTC	38	57-32	41 1/2	Digitaltronics	+ 1/4	+ 1.10	+ 19.48
OTC	10	20-9	13 3/4	Electronic Memories	+ 3	+ 7.79	+ 8.41
OTC	34	71-26	56	Fabrit-Tek	- 3/8	- 2.66	+ 37.50
OTC	12 1/2	28-10	23	Garber Scientific	+ 1 1/4	+ 1.82	+ 64.71
AMSE	16 7/8	32-14	41 7/8	Information Displays	- 2 1/4	- 5.15	+ 64.60
AMSE	67 1/2	108-54	66 5/8	Milgo Electronics	+ 4 1/4	+ 11.29	+ 148.54
OTC	74	138-71	100	Mohawk Data Sciences	- 2	- 2.28	+ 68.91
OTC	18	42-18	27	Optical Scanning Corp.	+ 4	+ 4.17	+ 73.91
AMSE	25 5/8	38-20	27 1/2	Photon	- 3 1/4	- 10.74	+ 50.00
OTC	40 1/4	90-38	95	Porter Instrument	+ 1/8	+ 0.46	+ 7.32
AMSE	18	28-14	23 1/4	Recognition Equipment Corp.	+ 2	+ 2.15	+ 136.02
NYSE	48 1/8	98-42	47 1/4	Ricon Electronics	- 3/4	- 3.33	+ 69.30
OTC	47	155-63	85	Sanders	+ 1	+ 2.18	+ 2.44
OTC	40 1/2	51-35	44	Scan-Data	- 5	- 5.88	+ 80.85
NYSE	342 1/4	321-229	279 3/4	Tally Corp.	- 3 1/2	- 7.37	- 8.38
				Xerox	- 6 7/8	- 2.39	+ 15.48
EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	84-37	40 1/2	44	Aune Visible	+ 1/2	+ 1.18	- 8.28
NYSE	32-19	20 1/2	19 1/2	Adams-Mills	+ 1/2	+ 2.63	- 4.88
OTC	21-13	13 5/8	16 1/4	Baltimore Business Forms	- 1/2	- 2.88	+ 33.80
AMSE	44-21	27	28 7/8	Berry Wright	+ 1 3/8	+ 4.82	+ 10.84
OTC	40-26	31 1/4	37	Data Communications	+ 2	+ 5.71	+ 18.40
OTC	38-26	27 1/4	29 1/4	Ernie Business Forms	- 1	- 3.31	+ 7.33
NYSE	118-81	84 1/8	106 3/4	3M Company	+ 2 1/4	+ 2.17	+ 25.70
NYSE	83-48	58	72 1/2	Memorex	- 1 1/8	- 63.33	+ 25.00
OTC	32-25	27 1/4	29 1/2	Moore Business Forms	- 1/2	- 1.66	+ 8.25
NYSE	78-47	67 1/4	74 3/4	Nashua Corp.	+ 3/4	+ 1.01	+ 30.84
OTC	88-36	31 1/4	48	Raymond & Raymond	- 2	- 4.25	+ 44.88
OTC	36-24	34 1/2	34 1/2	Standard Register	+ 1/2	+ 3.08	- 25.86
NYSE	44-36	37 3/4	36	Uarco	+ 1	+ 2.34	- 7.30
AMSE	22-13	14 1/4	16 3/4	Walsh Magnetics	- 1/8	- 0.67	+ 31.88
OTC	36-24	25 3/4	27 1/2	Wallace Business Forms	- 1/2	- 1.78	+ 6.78
EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	7 1/2	25-7	21 1/2	Advanced Computer Techniques	+ 3	+ 16.22	+ 186.51
OTC	17	33-14	27	Applied Data Research	- 1/2	- 1.82	+ 88.82
OTC	15 1/2	34-15	18 1/2	Arts	+ 1/2	+ 2.76	+ 16.30
AMSE	47	60-42	58 1/4	Automatic Data Processing	+ 8 5/8	+ 11.11	+ 19.88
OTC	4	18-4	18 3/4	Automation Sciences	-	-	+ 282.46
OTC	4 1/2	20-3	18	Bancor Applied Systems	+ 1 1/2	+ 10.34	+ 258.10
AMSE	22 7/8	43-21	21 3/8	Computer Applications	- 7/8	- 3.93	- 6.66
OTC	5	13-7	12 1/2	Computer Environments	- 1/4	- 1.96	+ 150.00
OTC	30	60-24	43	Computer Network	- 3	- 8.52	+ 43.33
AMSE	40	64-36	44 1/4	Computer Science	- 3 3/8	- 7.34	+ 10.63
OTC	38	62-32	37 1/2	Computer Usage	+ 3	+ 8.79	- 3.86
AMSE	36 1/2	61-36	63 7/8	Computing & Software	+ 7/8	+ 1.86	+ 47.60
OTC	**	**	**	Comshare	**	**	**
OTC	12 1/2	27-10	27 1/4	Datamation Services	+ 1	+ 3.81	+ 118.06
OTC	12 1/2	20-9	13	Digital	- 1 1/2	- 10.36	+ 4.60
AMSE	38 3/8	62-26	27 3/4	Electronic Computer Prog. Inst.	+ 3	+ 12.12	+ 38.29
OTC	35	66-32	63 1/2	Informatics	- 1/2	- 0.79	+ 81.42
OTC	21	28-14	16	Matrix Corp.	- 1/2	- 3.23	- 26.57
OTC	11 1/2	66-8	66	National Computer Analysts	+ 7	+ 12.07	+ 466.27
AMSE	31	46-28	38 1/8	Planning Research	- 1 1/4	- 3.17	+ 22.98
OTC	9	16-8	11	Software Systems	- 1/2	- 4.35	+ 32.32
OTC	20 1/2	22-12	15 1/2	TBS Computing Centers, Inc.	+ 2	+ 14.81	- 24.30
OTC	63	187-67	143	University Computing	- 6	- 3.38	+ 128.08
EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	18	57-18	48	Borthe Computer	- 5	- 10.00	+ 150.00
OTC	19 1/4	38-18	**	Chandler Leasing	**	**	**
OTC	4 1/8	16-4	18 1/2	Computer Exchange	+ 4 1/4	+ 29.82	+ 338.29
AMSE	26 1/8	36-21	28	Computer Leasing	- 3 1/4	- 11.11	+ 3.48
OTC	12 1/4	18-11	13 1/2	Cyber-Tronics	- 1/4	- 1.82	+ 18.20
AMSE	106 5/8	184-68	88 1/2	Data Proc. Financial & General	- 18 3/4	- 17.48	- 17.00
OTC	12 1/2	17-9	9 5/8	Datronics Rental	+ 1/2	+ 8.47	- 23.00
OTC	30	58-18	45	Deartown Computer	- 1 1/2	- 3.23	+ 125.00
OTC	13 1/4	19-12	18 1/2	DPA, Inc.	- 1	- 6.13	+ 38.42
AMSE	26 3/4	43-27	28 1/2	Grayhound Computer	- 2 1/8	- 6.93	- 0.89
AMSE	26 1/8	40-28	47 1/4	Gratco Equipment Leasing	- 3 3/8	- 7.13	+ 68.80
AMSE	48	65-41	66 1/8	Latexo	+ 7 1/2	+ 8.98	+ 64.13
OTC	6	14-5	9 1/2	Leasco Computer Leasing	- 1 3/4	- 16.66	+ 96.66
AMSE	36 3/4	63-27	61 1/2	Levitt-Townsend Computer Corp.	- 1 3/4	- 3.59	+ 67.41
OTC	16 1/2	18-7	8 3/4	LSC Data, Inc.	- 1/2	- 3.41	+ 38.89
OTC	10 7/8	18-10	10 1/4	Management Assistants	+ 1/8	+ 1.23	- 6.76
AMSE	41 5/8	63-28	32 5/8	National Equip. Rental	- 1 1/2	- 4.40	- 21.83
AMSE	38	64-36	48 1/8	Randolph Computer Corp.	- 1	- 2.17	- 21.20
OTC	16 1/2	42-10	36	System Capital Corp.	+ 1	+ 2.94	+ 233.33
AMSE	18 7/8	18-10	18 1/4	U.S. Leasing	+ 1 7/8	+ 11.68	+ 87.80

\*Companies included in *Computerworld's* stock trading index for each sector.



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## Personnel Agencies Needed Link in Changing EDP Field For Job Seekers, Companies

By D.L. Rees and R.S. Kelsey

It is not profound to say that EDP has changed significantly in the past 12 years. Improvements in hardware and software, as well as new and more extensive applications, have been generated at a pace such that today's DP decision is often out of date tomorrow. As a result, DP personnel requirements have also changed considerably. As in all industries experiencing technological advance, people's jobs in EDP have become much more structured, and quite specialized in nature.

At the beginning of the computer industry growth cycle, personnel were either transferred from other departments to the EDP department or hired directly by the DP manager. This was relatively easy because the hardware and application areas were comparatively simple. As the installation grew it was necessary to advertise or go through the personnel department to meet the growing needs of the installation.

Today, if the company is progressing as rapidly as it should be, both these approaches are probably not sufficient to install third generation hardware and sophisticated applications since one must find exactly the right man to do the job. The DP manager does not have the time to do this and the personnel manager can't possibly have the technical know-how in every area of his company. A good personnel agency should be used to supplement, but not as a substitute for, personnel and EDP department effort.

#### Speed, Expertise Provided

The EDP employment service, if given the specific job requirements, can often fill the specifications immediately (assuming the agency attracts qualified applicants). In any event, it is set up to spend the necessary time in putting its industry expertise to work to obtain the qualified man. In many cases it can lend professional guidance to company DP and personnel management in more specifically defining a position or promoting a career opportunity.

The agency can often assist in establishing a realistic salary (though not necessarily a higher one), by outlining industry averages based on the qualifications which are specified. It can appropriately screen potential applicants, through interviewing them and outlining their qualifications to companies only when a match is indicated. This can save considerable time in weeding out the job-hoppers, nonqualifiers, and professional resume writers.

The agency can also advertise as an objective party, completely outlining the position specifications, and thus attracting qualified applicants who are understandably adverse to dealing with post office boxes or submitting resumes and personal data prior to establishing a definite interest in a position.

#### Agencies Have Changed

Many applicants are sure that they can find a better job for themselves than an agency can. This is due to bad personal experiences with agencies in previously selecting a position.

The data processing placement business, however, has changed along with the industry, and there are now computer professionals at agencies who are capable of assisting the applicant, regardless of his salary and experience level.

#### Professionalism Lacking?

Much has been said about professionalism or lack of it in personnel agencies. The best advice that can



*D.L. Rees is vice president of Data Personnel Consultants and branch manager of the firm's Waltham, Mass., office. For five years he was with IBM, as a marketing representative, consultant, and marketing manager.*



*R.S. Kelsey is a consultant for Data Personnel Consultants. Previously he was a systems engineer with IBM, assistant director of EDP at Weyerhaeuser, and national systems engineer manager at Sanders Associates.*

be given is for the applicant to be sure of the agency's integrity and competence before he agrees to let an agency work for him. This can only be determined through personal interviews and checking the firm's reputation with knowledgeable people.

Any capable employment firm will deal ethically and honestly with both companies and applicants. In fact, its success in the industry will only be insured if it truthfully presents the applicant's qualifications to a company, and is quite honest with an applicant in evaluating his abilities.

Any professional who lets an agency represent him without a personal interview is seriously jeopardizing his career. By the same token, an agency is jeopardizing its reputation by taking the same chance.

#### What Services Are Provided?

The question may still be in the applicant's mind as to what service the personnel consultant will provide.

The service is twofold: guidance and selectivity of positions.

However, guidance is not only in the market value area. If all the applicant learns in his interview with a personnel consultant is that he's worth \$10,500 instead of \$10,000, both have wasted valuable time. He should have learned answers to these questions:

- Is there any reason to change jobs? (He may have the best available position.)
- What talents and experiences does he have that are most in demand and what are his weak points? (He may be in entirely the wrong area of data processing and hasn't been aware of the alternatives.)
- What types of positions does he qualify for and do they match his immediate desires?
- Are his long range goals reasonable?

In essence, the applicant should know a great deal more about his data processing career after talking to a personnel consultant, for both the consultant and the applicant have an obligation to answer the above questions if the right position is to be obtained.

#### Be Selective

The advantages of being selective in what organizations see your resume and interview you can't be overemphasized. One obvious reason is your time.

(Continued on Page 15)

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## Changes in Roles Predicted

PALM SPRINGS, Calif. — The role of the communicator and the communications supplier will change radically over the next five years, predicts Glenn R. Petersen, manager of General Electric's Mobile Radio Business. Looking at where the communi-

cations industry is going and what future systems needs will be, Petersen told the annual convention of the Associated Public Safety Communications Officers that new computer networks will require communications support "significantly different from any-

thing you now have."

Petersen pointed to the various kinds of mobile location ideas now being proposed, the use of computers for automatic dispatching, and the introduction of automated information processing for law enforcement.

## Personnel Agencies Useful in Changing EDP Field

(Continued from Page 14)

No person in a responsible position can afford to interview constantly and neglect his present job. Also, after a certain number of interviews, facts about different companies become garbled and an intelligent career decision cannot be made.

An agency should also make the applicant aware of all companies to which it plans to send his resume. He may have personal reasons for not wanting to be

interviewed by certain companies.

Finally, the applicant does not want to be known as a job shopper. Sending a resume of a competent applicant for a job he is not qualified for does nothing but harm to the applicant as well as the company.

A rule of thumb the applicant might use is a maximum of four or five interviews from his agency. If no interest is generated in that number there is probably a misunderstanding between applicant and consultant.

#### What an Agency Can't Do

Regardless of the intuitive abilities and industry knowledge pos-

sessed by a personnel consultant, he can't, or shouldn't, find the applicant a position paying \$15,000 if his experience and abilities only justify \$10,000. In addition, he can't erase mistakes the applicant has made in his present or past position. The applicant must bring out his mistakes and shortcomings — which may not be as disastrous as he thinks — and agree to a reasonable remuneration in his next position.

The central and only objective in using a personnel agency is to find the best possible job commensurate with one's abilities. Being realistic and honest with the personnel agency is the only way to meet this objective.

## Training Speeded By Robot 'Patient'

(Continued from Page 1)

instructor may interject emergencies such as a severe spasm and the closing of the larynx, a block in either bronchial tube, bucking (an attempt to cough the tube out of the throat), vomiting, and heart arrest.

Other advantages include a printout of everything that transpires during each training session, and the ability to stop for discussion or to repeat any portion of the training sequence.

Sim One breathes, has a heartbeat and pulse, opens and closes its eyes, and reacts to various medical treatments.

Among the project's problems are the fact that Sim One still uses a hybrid computer at Aerojet-General's Electronics Division in Azusa, Calif., 25 miles from the School of Medicine. The project directors would like to have a special computer built so that Sim One could be moved to the school.

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# IBM Obsoletes the Key PL/1 Manual

(Continued from Page 1)

developing a manual for all the various Cobol compilers, has frequently said that the availability of a standard manual is absolutely essential for the creation of a standard language.

## IBM Still Supporting PL/1

No indication has been given that IBM is in any way pulling back from its support of PL/1. The current issue of the IBM publication, *Data Processor*, describes the present position of PL/1 and cites a number of users

who have praised the ease of programming and the simplicity of the language for scientific problems. One of these users, James Sheehan, data processing manager of Stearns-Rogers, an engineering contractor in Denver, is quoted that he finds that programmer training costs have been cut and that having all 16 programmers using the same language has increased their understanding of each other's problems.

One key to success lies in having all programmers use the

same PL/1. There are currently two main sets of PL/1 compilers, one for the Operating System and one for the Disk Operating System. The DOS PL/1s are developed and documented from IBM Germany, while the OS ones come from a separate group in England.

## Short But Stormy History

This is not the first change in the short but somewhat stormy history of PL/1. The language has been beset by compiler delays and withdrawals, including those

for the 1800 and the 360/67. Last year, user group officers commented about the lack of public announcements and charged that continued failure by IBM to keep the public informed would "result in the death of PL/1 and nullify the initial Share and IBM

efforts to develop compilers."

Earlier this year Rep. Jack Brooks stated that standardization efforts for PL/1 were premature, and that the conclusion that PL/1 was "the next generation language" had yet to be proved.

## Pre-Registration Is Light At ACM Vegas Conference

(Continued from Page 1)

be able to attract good papers. Previous efforts to attract good papers have ended in failure, it was reported.

One of the conference papers awaited with more than normal interest is scheduled for this afternoon, when Prof. Michael A. Duggan of the University of New Hampshire will discuss the threat to the computer utility market posed by the Bell System's vast, computerized electronic switching system.

Details published in the conference proceedings indicate that Duggan will contend that the processing units in the switching system could start handling customers' data processing needs in background almost any time the Bell System companies decide to file a tariff.

Duggan says that the Bell System has refused to admit that the ESS network currently being installed is, in fact, a computer

network of gigantic proportions designed to last up to 40 years.

Duggan also notes that the Bell System has a deliberate policy, and the capability, of eavesdropping on its employees' and customers' use of the switching network.

Duggan told *Computerworld* that he expected a Bell System representative to attend the session and that he would, hopefully, defend the ESS installation.

## Las Vegas

The hotels are not as close to each other as they seemed in the brochures, and the Las Vegas Convention Hall is a dollar cab ride away from most of them.

The old days of inexpensive meals seem to have vanished. The price of a coffee house BLT sandwich is \$1.45, while a bacon and eggs breakfast is more than \$2.

But the temperature is pleasant, and the city stays up all night.

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